# The Builder.

No. CCCVII.

*SATURDAY, DECEMBER* 23, 1848.


ONE of the first places we saw in Liverpool, during our recent visit there, was the establishment of the Messrs. Holme, builders, which displays more than usual care for the prevention of fire, and such arrangements for lessening labour and cheapening processes as can be resorted to with advantage only for large operations. The shops, which are very extensive, have incombustible floors and doors, and have along the ceiling perforated pipes, communicating with a cistern 45 feet long, 12 feet wide, and 6 feet deep, at the top of the building, by means of which each apartment may be flooded with water. The substitution of steam cocks to melt glue for the usual stoves, removes a constant source of danger. A steam-engine on the premises saws timber, planes boards, works mouldings, makes up the mortar (the water being laid on up to the heap, and the lime burnt on the premises), and performs various similar operations.

Amongst other works now being executed by Messrs. Holme are the viaducts of the Liverpool, Bolton, and Bury Railway, at the north end of Liverpool, in conjunction with Mr. M'Cormack;* a line belonging to the London and North-Western luggage department passes beneath the Bury line, by a tunnel near the French prison, and here they are now turning an enormous skew arch in bricks and cement. The span is no less than 99 feet. The arch, when finished, we were told, will be 6 feet thick at the crown. The Corporation docks, at this same end of the town, are fast advancing towards completion, under the able superintendence of Mr. Hartley. The enclosure walls, river wall, a lofty clock-tower, and other buildings, are all constructed of Galloway granite, and seem built for futurity. The face of the river-wall presents, amongst the comparatively small stones with which it is constructed, occasional large masses, to serve as bonders, which give it a somewhat patchy appearance; this, however, time will lessen. The backing is of Runcorn stone.

The extent of dock accommodation now possessed by Liverpool is enormous. The length of the river-wall, which fronts the line of the docks, is said to be 4 miles, and the total water area amounts to nearly 200 acres, with a quay space of more than 14 miles. What Liverpool will ultimately become it would be hard to guess; its progress during the last fifty years has been of a marvellous character, and it yet presents enormous capabilities for further extension. Mr. Picton, in his paper on ancient Liverpool, to which we recently alluded, corrects, as an error, the existing impression that the career of Liverpool has been one uninterrupted course of prosperity and progress; for long it slumbered over its undeveloped energies, and presented no points worthy of notice.* "The Castle-street and Dale-street, of the middle age of Liverpool, were not the broad and spacious avenues which they now present. Up to the end of the last century, and in many cases till within the last twenty-five years, the principal streets of Liverpool were narrow and unsightly lanes. Perhaps no town in the world, except London after the great fire, has undergone so entire a renovation as Liverpool within the last sixty years. The commerce, and consequently the requirements of the place, had so far outgrown the contracted ideas of its aboriginal inhabitants, that a complete demolition and reconstruction of its main thoroughfares became absolutely necessary. Old Castle-street, Old-hall-street, Dale-street, High-street, Tithebarn-street, with many others, fell beneath the ruthless hand of modern improvement. We, consequently, have not here, as in Bristol, long rows of venerable-looking half-timbered houses, projecting their gabled fronts and oriel windows in amicable advance to their opposite neighbours, looking like fossilized memorials of bygone times." In the course of his paper, the writer speaking of the Exchange, mentioned that additional accommodation being required for the merchants, a scheme was set on foot to clear away the buildings behind the Town Hall as far as Oldhall-street, and erect an exchange worthy of the increasing greatness of the port. For this purpose an Act of Parliament was obtained in the year 1801. The estimated expense was 80,000*l.*, and the subscription list *was closed in three hours*, although no individual was allowed to hold more than ten shares. The first stone was laid on the 30th of June, 1803; the masonry was completed in March, 1807; and the building was opened on the 1st of January, 1809: the total cost was 110,848*l.* He considered that, notwithstanding the advance in the art of architecture, and of all the sciences connected with construction, during the last forty years, the Exchange continues to this day unrivalled—the "*facile princeps*" of the buildings of Liverpool.

The design of the Exchange is usually attributed to the late Mr. John Foster, sen., then architect to the corporation, but this he doubted, and was disposed to think that the late James Wyatt had something to do with it.

Our business, however, at this moment, is with the present, and there is no lack of subjects.

Mr. Cockerell has just finished a building for the purposes of the Bank of England here, and it is one of his most successful works. The front is similar in arrangement to his banks in Bristol and Manchester, but is more ornate and in general effect far superior.†

Separated from this only by the road, is another, and more lofty structure, in course of completion,—the Liverpool Commercial Bank, which contrasts but ill with Mr. Cockerell's structure. This presents a range of Corinthian pilasters on a very flat basement, carrying an entablature which is crowned by an open balustrade, with enormous, ill-shaped vases on the dies. In the centre of the return front is a heavy ornamental erection, that has the effect of crushing all beneath it. The architect is Mr. John Cunningham, of whose Philharmonic Concert-hall we were able, in a previous article, to speak in more flattering terms.

Relative to our notice of that building, by the way, Mr. Cunningham has addressed an angry letter to us complaining that we had "invidiously stated that the roofs were of hazardous construction," "implying doubts of the author's practical knowledge and reputation," and that if we had known more of the roof, we should then, "with such men as Jessy Hartley, Cockel, and others, have pronounced the construction anything but defective." Further, it seems that he has written a letter on the subject to one of the local papers, which is to appear forthwith.

Our notice of the Concert-hall was a complimentary one: we said it was "a building with considerable claims to attention," that it had a good effect, "resulting chiefly from attention to proportions," and that it was distinguished by a monumental character. Of this the architect gives no recognition, — nor is he singular in this. We may praise a man for a "month of Sundays," and he remains dumb: the praise is simply the statement of a *fact* which needs no acknowledgement,—namely, his ability. But only say that "Jove once nodded,"—that his work of to-day is scarcely so good as a work of yesterday,—that you think him wrong for *once*,—and if he live no nearer than the Orkneys, Monday will bring us a page of abuse. Our praise is worth nothing,— not even a penny letter: but the slightest expression of our disapprobation would seem to have a very different value.

And now, what was it we did say in the matter of the Concert-hall? Not what Mr. Cunningham puts into our mouths, but simply this, that "The main trusses are of immense size and somewhat hazardous construction;" not one word more or less. We implied no danger, no doubt of the architect's skill; and if he is anxious that we should give proof of the correctness of this expression as applied to the trusses in question, we shall willingly do so.

As we have got back to the Concert-hall, we may mention what we omitted to do when there before, that adjoining it a Unitarian chapel in the pointed style, with tower, &c., is being built under the direction of Messrs. Barry and Brown. It shews the right feeling, and promises to be a nice building; but why such a material as *Bath* stone should be adopted for the dressings, which seems to be the case (the walling is of Rochdale stone), in a locality where, unless we are greatly mistaken, a much more lasting stone is as cheaply attainable, we cannot tell.

Amongst the most important of the buildings now in progress is the Royal Insurance Office, in Dale-street, at the corner of North John-street, and of which we give a perspective view.* It was built from the design and under the superintendence of Mr. William Grellier, who, it will be remembered, obtained

* The Bolton and Bury line was opened about a week ago. With the exception of the part named it was wholly constructed by Mr. M'Cormack, and cost 900,000*l.*, including the land. We understand that the line passes over twenty-six bridges, and forty-eight bridges cross the road. There are six viaducts on the line, two of wood, two lattice of iron, one of brick, and one of stone. A considerable portion of the line is horizontal, and the greatest incline is only 1 in 94. There are twenty cuttings, the deepest of which is 48 feet, and twenty-two embankments, the greatest height of any of them being 44 feet. There are eighteen stations upon it.

* "The first authentic record of the town under its modern name is found in the charter of Henry II., in the year 1173, to this effect,—'That the whole estuary of the Mersey shall be for ever a port of the sea, with all liberties to a port of the sea belonging; and that the men of Lyrpul, formerly called Litherpul, near to Toxteth, may come and go from each side of the sea with their ships and merchandise, freely and without obstruction.' It would appear from this that the conquest of Ireland was the immediate cause of the establishment of Liverpool as a port. English settlements began to be established in that ill-fated country. The convenient situation of Liverpool for the purposes of trade, and for the embarkation of troops and military stores, began soon to be appreciated. Further to encourage settlers in the town, Henry II. turned speculative builder on his own account, and erected a number of burgage houses or tenements, for which only a small quit rent was charged, called burgage rent. It is probable that in this manner Castle-street and High-street, otherwise Joggler-street, were first erected. It would appear, nevertheless, that settlers did not flow in as rapidly as was desirable, and that at that early period the town of Liverpool, like a modern port on the other side of the river, was rather overbuilt, for we find that 34 years after this, in the year 1207, King John, wishing to let his houses in Liverpool, issued a charter, which is still in existence, and forms the earliest in the series of our corporation muniments."

† We shall probably give illustrations of this, and some of the other buildings already mentioned by us, in early numbers.

* See page 619.

the first premium in the open competition for the London Royal Exchange.

The Insurance Office in question is wholly of stone, of large size (the frontage in North John-street is about 93 feet, and in Dale-street, 52 feet 6 inches), and of highly ornate Italian character, shewing much originality in some of the details. The key-stones over the two-pair windows are cleverly carved into heads with foliage. The attic story is a little over-done; but the general effect of the whole is exceedingly good, and reflects great credit on Mr. Grellier. The doorway (in the North John-street front) is adorned with sculpture, including the Royal and Liverpool arms, firemen's axes and helmets, and the ancient crest of the city, "the liver," executed by Mr. C. S. Kelsey. Messrs. Mackarel and Co. were the contractors; and the amount expended on the building is from 17,000*l.* to 18,000*l.*, exclusive of the land, which cost about 10,000*l.* extra.

The week after we were in Liverpool the Church of St. Francis Xavier, Salisbury-street, erected from the designs of Mr. J. J. Scoles, for the Jesuits, was opened. This is a large and important structure (150 feet long and 60 feet wide, internally) in the geometric style of pointed architecture (that of the end of the thirteenth century), and has a lofty square tower at the north-west angle of the building, intended to carry a spire. The church is calculated to hold from 1,500 to 1,800 persons. We did not see it, but understand that it is a very successful work.*

When we add to what we have already noticed, that "the Sailors' Home" a large Elizabethan building, the first stone whereof was laid by Prince Albert in 1846, is approaching completion; that a depôt for emigrants, to contain some thousands of persons, is being erected; not to say any thing of a proposed Theatre; a Chapel for the new parochial cemetery about to be commenced under the direction of Mr. Picton; or the "York Buildings," in Dale-street, just emerging from the ground under the same architect, and which are to cost about 16,000*l.*—our readers will see that additions are being made to Liverpool of no ordinary extent and character.

London is certainly not England, however true it may be that Paris is France: and if a foreigner wish proof of this, he will find it in Liverpool, to begin with.

* The following description is forwarded us by a correspondent, and may be relied on:—The northern and principal front is divided into three compartments of unequal height, corresponding with the internal arrangement of the nave and aisles, by projecting buttresses of four stages. The central compartment, which is the loftiest of the three, is occupied by a window of large size, divided into two sub-arches by a central mullion, composed of clustered shafts with sculptured capitals, and each of these again into two foliated lights by a chamfered mullion with a single attached shaft. The head of the principal arch is filled with a large foliated circle, and those of the sub-arches by smaller quatrefoil circles. The gable of this compartment has a Catherine-wheel or rose window inserted, and is surmounted by a stone cross. The windows of the side compartments are smaller, and of two lights each, with foliated heads, the main arch having a foliated circle. The gables of these divisions have niches with trefoiled heads, and hood mouldings resting on corbel heads, and are also surmounted with crosses. At the north-west angle of the building a lofty square tower of four stories is placed, having its angles flanked by buttresses placed at right angles to each other and to the face of the wall, and surmounted by octagonal turrets, intended to carry crocketed pinnacles, to be added when the spire is finished. A pierced parapet terminates the faces of the tower, through which also, in the west front, is the principal entrance. This consists of a deeply-recessed doorway, divided into two arches by a clustered shaft, having four detached shafts in each of the jambs, from which the mouldings of the architrave spring. The western elevation is divided into eight bays by four-staged buttresses, which terminate in pedimental heads at the parapet, which is plain. Each of the bays has a window of two lights with foliated heads. In the southernmost bay of this side is a stone porch, which communicates also with the priests' house by means of a short cloister, having narrow lancet windows filled with stained glass. The eastern elevation is similar in style to the western, except that it has a low offset running along its entire length, which is occupied by a series of seven apartments for the priests and confessionals, communicating with the interior by means of double-arched apertures. A porch, similar to the south-western, is also placed at the north-east angle of the structure. Internally it is divided into a nave of 30 feet wide, and two side aisles of 15 feet each. The latter are separated from the nave by eight pillars, having cylindrical shafts, 1 foot in diameter, of polished Drogheda marble, with high cylindrical bases and bell-shaped capitals, covered with foliage placed vertically, with the stems rising from the neck mouldings, and sculptured in the bold manner characteristic of this style of architecture. From these spring equilateral arches, with bold, well-cut architrave mouldings. The apsis for the high altar is of hexagonal shape, and lighted by three double-light windows, with richly-sculptured mullions, and foliated tracery in the heads. The doorways communicating with the confessionals before mentioned, have elegant shafts in the jambs, and foliated arches, with elaborately-cut mouldings in the archivolts. The ceiling of the nave is semi-hexagonal, and divided into square compartments by strong frame-work, which is moulded and otherwise enriched, and the whole is coloured to resemble dark oak. It is purposed, hereafter, to paint and emblazon this with stars, and various religious devices. In the aisles the timbers of the roof are visible, and stained oak colour. Over the principal entrance in the tower is the organ-loft, and a slightly projecting gallery adjoining in the aisle is appropriated to the choir.

## HOW IS ART TO BE STUDIED?

In the introductory essay on the scientific principles involved in the study of the fine arts,* the efforts made were to convince the reader that the principles of art ought to be based on the sure foundation which renders other departments of knowledge productive of important practical results in the progress of mankind, and it was hoped by the more genial influence of positive science to dispel the thick mists in which art-principles are involved. Modern philosophy asked this important question—Have we any ideas independent of experience? It was answered in the negative. Mysticism was abandoned, reverie and dream passed fleetingly away, useful knowledge and vigorous action rose with the dawn. The dwellings of art alone have their begrimed casements closed and curtained, amidst the hum and bustle of the awakened world; dreams are still strong upon their idle inhabitants, who yawn at utilitarianism. Utilitarianism, the sneer of transcendentalists, is it not the great principle of the universe? Utility watches over the world, directing the smallest atoms and the great globe itself in their appointed courses. Let the investigator penetrate wherever he may into the depths of nature, anatomize the vegetable and animal kingdoms, or gaze on worlds beyond, does he find aught unnecessary, useless? Say not that utilitarianism is a low motive, when it is the great lesson taught in the works of "The Good." It is ruling in the nerves, veins, and arteries of those who decry it. Shall it be said contemptuously that a man of science dated his greatness from an improvement in spectacles? Is it no boon to mankind to have the portals of the understanding opened—the blind to receive light? The eye, the theme of the poet, the essential sense of the painter,—how wondrous in economy and utility! Inutilitarianism is alone to be feared, if such chaotic quality exists. Useless was a word invented by man as a symbol of his ignorance and selfishness; conditions which prevent him perceiving utility beyond his own immediate opinions and necessities. Even error itself has its use, forming, as it does, the threatening phalanx which keeps the army of truth organized and on the alert. Man must always have to conquer, to compel him to action: victory is more dangerous to him than defeat. The pioneers of civilization must be ever hacking and hewing in the primeval forests of prejudice, not only lopping the branches and felling the trunks, but in tearing out the insidious and entwined roots. Should men once say, "It is enough, let us seek repose," a new forest forthwith springs up and closes in upon them. Let the artist remember that wrong has had its martyrs as well as right; as utilitarianism is in the ascendant, let him not despise it and fall a victim to its power.

We have endeavoured to depreciate the study of ancient art on various grounds. It has been argued, that this is to abjure experience: if we believed this to be the tendency of our opinion, we would willingly abandon it,—but it is not the case. Let a picture or statue of a past age, assumed of the highest possible excellence, be placed before an artist, does he understand why a certain arrangement of colour, of grouping, of light, and shade, &c., in the one case, or why a certain selection of forms in the other, answer well as the mechanism of production? If so, there is no need for him to copy, for this is precisely what the authors of them knew. Suppose, on the contrary, that an artist stands before the picture or statue in the humble spirit of a learner, will the picture inform him why certain arrangements were used in preference to others,—will the statue reveal how its forms were selected and compacted? will looking at the sun inform us of the nature of its light? We should as soon expect to hear of a student being perfected in a foreign language by copying page after page without knowing the value of a single word. It is not the value of experience that we deny, but the efficacy of old paintings and sculptures to impart it: the result of encouraging their study is to produce copies,—to make imitators of a particular master, or compounders of the heterogeneous qualities of many.

In the recent instances we have assumed the works to be of the highest perfection attainable; but if there is the least room left for the supposition that we take the assertions of habit and fashion as proof of the excellence of ancient art, as suggested on a former occasion, then indeed men ought to hesitate before forcing it on the public or the student, as by this means mannerisms may be perpetuated: its very study indicates the modern artist's thraldom, and is an evidence of a negative character in favour of the ancient, at the same time that it is affirmative of want of knowledge when moderns affect to admire without understanding, and of want of resolution, if, understanding perfectly, they do not, in performance, rival or surpass it.

We have before expressed our conviction, that to become adequate judges of the perfection or defects of ancient painters and sculptors, the student must forsake the dead to seek the living,—not only the living artists, but all pervading life: nature is alone the standard by which art can be judged, a long and diligent study of her laws will alone enable him to arbitrate. Every artist has doubtless in his experience felt humiliated in the presence of this monitor, after having done all in his power to rival her, and may have observed, the more attentive he has been to her instructions the more sensible he has become of falling short of excellence; he may recollect, too, after having neglected the study of nature for any considerable period, in again contemplating his performance, which before disgusted him, while in the habit of referring to his archetypes, that he found his acuteness of perception blunted: the odious comparison forgotten, he wondered at his own power. To the thoughtful, this self-satisfied condition is a strong symptom of decay and a powerful incitement to future diligence. If we find the artist's power of discrimination falls off when the study of nature is neglected, how shall we estimate the authority and judgments of those who never receive the impetus to observe with the constant and minute attention of the practical man? It may be suggested that art may be understood in theory without the power of practice; we do not believe it possible: shadowy notions may, perhaps, be possessed; but such a theory never rises to that power of perception which appears to be an extension of sensibility, in the direction in which sense is continually exercised by the practical man. How often is wonder expressed at his subtleness of discrimination; his detection of flaws and imperfections quite imperceptible to the ordinary observer? many consider it to be only an ill-natured disposition to find fault. On the other hand, the practical man regards the want of discriminating power as blindness in those who cannot detect the subtle merits and defects which he does. A man must certainly have some sort of theory, before he addresses himself to practice, to preside over action; he must have a pre-notion of the means to attain the end proposed,—which may be right or wrong, as results will reveal to him. In his first efforts, his theories are constantly meeting with contradiction,—thus in theorising, practising, failing, practice and theory mutually act and re-act on each other, till, "dangerous" being marked on every side, he discovers a safe path between. Practical men may record; and by this means critics, perhaps, pick up a species of theoretical experience,—but it is knowledge at "second-hand:" books can never give all the ramifications nor the vitality of real experience; for, says the proverb, "experience taught is never equal to experience bought." It is amusing to hear how men of parrot information lecture those from whom they have imperfectly derived it. Theory and practice are soul and body; separate them,

* See p. 434, *ante*.

practice is dead—theory soars into impracticability.

We advocate a national collection of pictures and sculptures arranged chronologically, but not an extravagant outlay to obtain the originals of past epochs. Let good copies be commissioned of those pictures and sculptures considered the *chefs-d'œuvre* of each period of development, to teach men that art, like other emanations of life, is progressively developed. The Glypthothek at Munich is a model for arrangement. Commencing with Egyptian, the rubble on which the superstructure of Greek art was raised, the visiter passes on to view remains of Greek sculpture, which bear on them more or less the types of the gods imported by the Asiatic and Egyptian colonists; passing on to the marbles of Egina, thence to the Hall of Apollo, containing the remains of productions which more immediately preceded the age of Phidias, and in which the rigidity of former periods relaxes; and thus leading him on to the climax of Greek art, and, afterwards, to witness its decline. The contemplation of these sculptures, or those of our own British Museum—of the works of the painters, from Giotto to Raffaelle and the decadence of Italian art—do they not all inform us of an ancient and foreign influence first cast aside, then of a servile and rigid adherence to particular forms in sculpture, in painting, hair, wrinkle, and every minute individuality, and that as experience increased, handed down from master to pupil, art obtained the power of discriminating and selecting? It may be observed that art has always advanced steadily on the inductive principle—rising from particulars to generals—a system that has always been attended with good practical results. In all branches of knowledge, the final effort being to systematize the accumulation of experience into order and unity, the perfect understanding of the whole involves the knowledge of its component parts. When the study of art was substituted for the greater authority of nature, and principles for guidance were attempted to be deduced from it, art fell. Let it always be remembered that *nature was the antique of antiquity.*

The slow though certain progress of inductive attainment is opposed to the selfish and mistaken ambition of the present day, which is too often, we fear, content with the semblance of a front of strength which must be conscious of a frightful hollowness within: failing the strong skeleton and vitality of truth, the fear of being crushed is ever present. To avoid this let every man walk obedient in the path of duty for truth's sake, always with hopeful delight, reflecting that whatever his attainments may be, the next age will surpass him; recollect there is always to learn—man at his highest is but scholar, never master.

The writer protested against the archæological mania, because he believed it had missed the path of greatest utility, and that instead of diving into the past to note the errors of our predecessors as warnings both to the present and future, it has endeavoured to revive follies and embalm decay. We regret that maudlin sentimentality, that incoherent wailing over the destruction of antiquities; the violence of the grief, however, bespeaks that it will be short-lived, as it does, in some degree, for affectation and insincerity: it is not that the progressist has less feeling than the archæologist; it is not that he loves the past less, but that he loves the future more; his offspring is more dear to him than his progenitors; it bears witness to his strength of mind that he denies the less emotion to interfere with that deep-rooted love which prompts the resolve to accumulate knowledge, that posterity may inherit a richer legacy than himself. He sacrifices not the venerable fragments of the past with the savage ire of the iconoclast; he sacrifices an apparent past and present for a real future: he would sweep as a strong wind the stagnant and infected air from the face of the earth, nor stop to grieve o'er the fallen ruin—the decayed and uptorn tree or withered flower, which fall, too weak to bear the strength of the remedial gust.

There is an edifice to erect requiring more skill in design than the Parthenon. Good reason has the progressist not to waste his resources on ruins when the temple of man demands all human energies to complete it.

W. C. Thomas.

## THE GREEK PEDIMENT.

*Fig. 1*

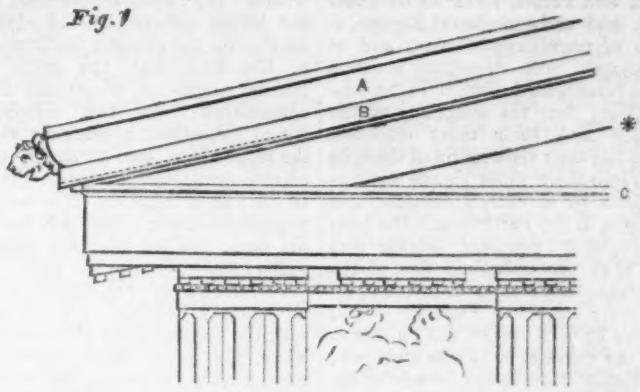



*Fig. 2*

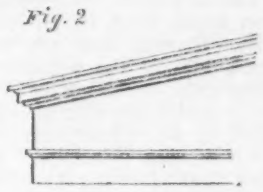


*Fig. 3*

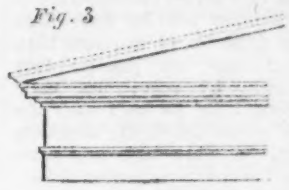
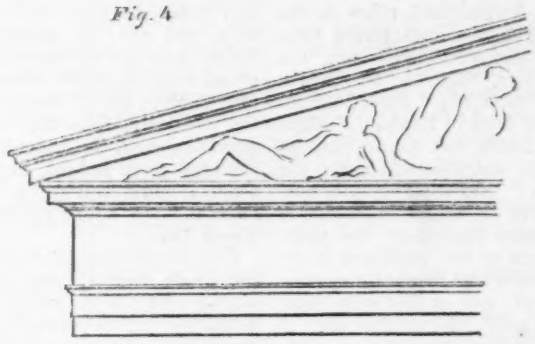


*Fig. 4*



## ON THE ARCHITECTURE OF THE GREEKS.*

The two papers contributed by me on this subject† ought to have been followed up by the matter of the present before now; but some reparation may be made by concisely recapitulating the extent of the discussion already overtaken.

In the first, then, after endeavouring to set the principle of regard for the Greek remains on its true and proper basis, by discarding the antiquarian veneration of mere classicism for the more discriminating and understanding admiration of merit in beauty,—I found occasion at the same time to speak apologetically of the unreasoning veneration itself, as, compared with many other unreasoning venerations in the world, founded on merit rarely to be met with,—and attempted, in conclusion, to define the limits of my own architectural delight in the Greeks, by disclaiming model, rule, and precedent, but discriminating surpassing excellence of design.

In the second part there was presented a sketch art-historical of the rise and reason of the reverence for Greek models, tracing the general picture of the "revival," and pursuing this into the more mature appreciation of Greek works which finally resulted, more in our own day; and a glance was taken at the movement in the world's progression which the Greeks made, in which I found, without qualification, an originality and brilliancy of position without a parallel in history.

The remainder of the task which I set myself is a rather more particular discussion of some prominent points in critical examination of Greek architecture; and this may be fulfilled by adverting briefly to the following subjects:—

The general design of the Greek temple.
The pediment.
The stylobate.
The absence of *base* in the Doric column.
The Ionic capital.
The Corinthian capital.
The antæ.
The sculpture.
The optical corrections and other refinements.

The general idea of a Greek temple, as regards its purposes and uses, and the ceremonial to which these applied, we need not inquire into, further than to observe here the foundation or first step of the exquisite simplicity which forms, in the whole design and every part, so peculiarly the beautiful merit of the work. The plan is the simplest conception of the sort that we know of—a mere oblong building, with an entrance at one end. Any other form of plan (speaking in general terms) would doubtless have answered all the purposes as well, or any other idea of mass and external composition; but we have to give the Greeks the credit of a choice which does vast honour to their judgment. And no less have we to award them the same merit in perhaps every part, without exception, of the work. To be sure, simplicity was with them in every thought the order of the day,—so that the eminent simplicity of the conception was in some degree the natural consequence of the manner of thinking peculiar to the nation and the time; but beyond this negative simplicity there appears to me to be observable a sort of positive simplicity,—as if we might say of them that they resisted from the first every encroachment upon severity and studied simplicity for its own inherent excellence. For it is manifest how widely their circum-

* Read at a meeting of the Architectural Association, held on Friday, December 1st.

† See pp. 15 and 99, *ante*.

stances differed from those of other nations whose simplicity arose from the deficient fancy of untutored judgment: the refined study displayed in every stage of all their works shows this. What simplicity is to be remarked in the antiquities of Egypt and India, Assyria, and Persia, so far as we know them, Mexico, and early mediæval Europe, is the crudeness of uncultivated fancy, and is frequently conjoined with dreadfully abortive efforts at more complicated design in enrichment and variety; but the simplicity of the Greeks extends into their most elaborate design, and no less their elaboration of thought (so I contend) into their most simple conceptions. The flank of seventeen columns and the front of eight in the Parthenon,—the long range of twenty-four precisely similar and simple shafts, with the unbroken line of the long simple entablature, convey to my mind an effect of *elaborate* simplicity, which, if still questioned, may be seen carried out no less in the integer of the column, or of the stylobate, or of the entablature, than in the integer of the whole temple. Mighty wealth and power, despising show, stand up in the far greater majesty of studied and severe unostentatiousness. No workmanship can be finer than their masonry, no finish more exquisite than their sculpture,—it was not poverty that restrained enrichment by cost; but their manly mind preferred for its own sake the manly grandeur of severe simplicity, and took delight—the delight of pure taste and cultivated intellect—in the native nobleness of it.

The Greek temple, then, is no more than the simple idea of an oblong edifice of well-elevated walls, covered by a roof sloping to each flank from a longitudinal ridge in the middle, the ends taking the undisguised form of the transverse section. Does not the boast of Inigo Jones, that his St. Paul's, Covent Garden, if it must be a "barn," should be "the handsomest barn in England," show in a singular light beside the simple plan of the great "barn," on the Athenian rock—the wonder of the world? But what we have now particularly to observe in this composition is the remarkable feature formed by the pediment. The formation of the pediment is by the horizontal cornice of the flanks being continued along the end, and at the same time carried raking from each side to the slope of the roof.* The triangular tympanum is then set back to the line of the entablature; and the raking cornices are crowned with an additional moulding. as a stop to the roof covering, in the first place, and in the second as a means of finish to the feature thus formed—the pediment. The prevailing characteristic of simplicity is here again the governing principle; but it is a question whether the pediment is a perfect composition, or indeed whether it can possibly be made so. There is an awkwardness in the connection of the raking cornice with the horizontal. In the pure Greek works there is not here so decided a defect as in the Roman and Italian,—from the circumstance, that in the former the corona being so broad and projecting, and the surmounting moulding so very small, the cornice is in principle almost what may be called a single bold fillet (fig. 1), a very different principle from that of late imitations; but still the presence of a surmounting moulding, however small, occasions what is at once observable as a decided awkwardness in the junction. This, however, has only to be referred to the extreme difficulty of composition in this part of the design. As a first principle, the sloping roof is what we need not pause to enlarge upon, it being simply the best possible conception for its purpose; and when the Greeks preferred the finish of this by what we may call a gable to the easier finish by the now common hip roof, I certainly think they decided judiciously, even when in so deciding they adopted all the disadvantage of the difficulty under consideration. The finished outline which is obtained for the end façade is so universally acknowledged as to be worthy of all the risk, if not even absolutely demanded, in order to complete the design upon the principle adopted in the whole composition. But it is well worthy of study to try whether any improvement could be made upon the Greek pediment. The difficulty lies in combining the straight horizontal entablature of the flank with the gable of the end. Several modes of attempting this might be conjectured; the two simplest of which would be,—first, continuing the cornice on the slope alone, and secondly, continuing the cornice horizontally alone. (Figs. 2 and 3). In the former instance, it is manifest that the triglyphed frieze could not be carried along the end; besides that the expansion of the width of the frieze in the gable, if the triglyph enrichment were even dispensed with, it would be scarcely possible to form in accordance with the general style of composition. In the latter, the naked gable above the horizontal cornice claims at once some covering; and if we supply this by such means as a raking crown moulding, it would be meagre, unless, perhaps, at least as heavy as the cornice itself, and even then would finish by no means well at the sides. Between these two arrangements the Greek idea of the pediment forms a good compromise, combining the advantages of both; but therewith involving of necessity (as I have called it) an awkwardness in the junction of two dissimilar principles. Still, there are other ideas which might yet be attempted, such as fig. 4, forming the cornice, with an under corona or fascia in the bed mould, so that it shall be separable in the pediment,—the corona and crown moulding forming the raking cornice, and the bed mould, with its fascia, a lighter base for the pediment. This, I am inclined to think, might be carried out into an improvement,—but I would, rather than affirm too decidedly, take this as my view of the question,—that the difficulties of the pediment are very great indeed, although, at the same time, I must confess a very considerable reluctance to admit the perfectness of the Greek idea.

One of the best points in the composition of the Greek temple, although the most unassuming of all, is the stylobate. The prevailing simplicity is here present in perfection, with a broad-based decision of design which cannot be too much admired. Artists less severely truthful in their judgment would scarcely have adhered as these did to the unvarying three steps (and these not determined at all, be it observed, by convenient rise and tread as *steps* to the colonnade, but by the fit proportions of such a *base* to the building): many more pretending efforts have been made to produce a stylobate—but these three simple steps are the best, because the most excellently principled of all. They give a broad, strong, severe foundation to the composition, which modern architects, if we may judge of their own practice, have failed to appreciate. The principle which we may deduce from the Greek practice, that the mass of the base should more than counterbalance the overhanging mass of the cornice (to which its purpose is to provide what may be called a balance in the composition), and which may be taken as invariably a good principle, is much less frequently to be met with in modern works than a meagre reverse—there being generally, indeed, no base at all. In the mediæval works also, although the overhanging cornice is discarded, the spreading base ought not to have been *so much* discarded with it, as we may judge from the bold and finished effect of those works where the base is heavier than usual.

The severity of design, to which I give every value in the architecture of the Greeks, is nevertheless, I think, carried too far in the Doric column, in respect of the absence of base. Just as we provide a stylobate as a balance to the cornice, so I hold it invariably requisite to provide a base for the column as a balance to the capital. The baseless Doric seems crude and unfinished. The flutings terminating upon the pavement form in the abruptness of the thing a positive eyesore. If, instead of a column of studied outline,—rounded, diminished, fluted, with necking, echinus, and abacus elaborately proportioned, it were a mere upright squared shaft, the baselessness would, in these circumstances, and these alone, be correct and satisfying as a balance for the absence of capital; but if even a tile be placed above, I hold there must be a tile placed below,—and with the finished form of the Doric column I cannot conceive how the ancients could make it baseless, and still more so when, in the very preceding idea of the work itself, the noble stylobate carries out the good principle so well.

Robert Kerr.

* It is to be remarked that the crown moulding (Fig. 1) A stops short on the side, as a mere raking coping-stone, but the fillet B is carried along the flank as a member of the horizontal cornice,—thus manifesting a desire to constitute some sort of *separation or division* of the flank or primary cornice in the two cornices of the pediment,—as if the raking cornice should take the crown mouldings and corona, and the horizontal the corona and bed mouldings. Besides this, the circumstance of the bird's mouth moulding C, of the horizontal cornices becoming a smaller ogee in the raking cornice, is to be observed as additionally significant of this disposition,—making the principle of separation still more apparent.

## LEICESTER SQUARE.

The decision of the Lord Chancellor being adverse to the right of any private party building over the centre part of Leicester-square, and it having thus secured to the public at large one of those spaces in the metropolis which assist most materially to the well-being of its inhabitants, by a free ventilation and uninterrupted space of light and air, it becomes a question, in which not only the inhabitants of the square but the great body of metropolitan pedestrians are interested, how such an open and neglected space could be most beneficially converted into a public use.

Green trees and shrubs and flowers are most pleasant to look upon, especially by those whose avocations confine them to the brick encumbered thoroughfares of London. But it is hopeless to expect that such green things will flourish in our sooty atmosphere. It is in evidence that no person ever walks in the enclosure; the railings are dilapidated; the walks are mud; and the trees that should be green are black. The square is in the middle of a great thoroughfare, where business and traffic are the important objects of life, and where nursery-maids and children idling or taking exercise, as they do in some of the more aristocratic squares, would seem quite out of character.

I would suggest that the whole enclosure should be cleared away, and the area flagged and paved. It might be protected with a stone curb, granite piers, and chains. The statue in the centre would give it character, and we should obtain an open handsome space, of which we have few examples in London, but which would recall to the foreigners, who here love to congregate, many of the piazzas or *places* which form conspicuous features in their own continental cities.

In a mere utilitarian point of view, this arrangement would be beneficial. It so happens that much of the pedestrian traffic through this square is upon the diagonal lines. It forms the direct communication from Regent-street to the Strand, and from Long-acre to Pall Mall, on these diagonal lines, and the open space would so far facilitate the communications.

How this unprofitable speculation can be effected I need not anticipate; but as it is evident that a private building speculation is smashed, the opportunity might be turned to public advantage by those interested in the improvement of the architectural appearance of the metropolis.* T. L.

## LEASEHOLD TENURES AND FRAIL STRUCTURES.

The present metropolitan custom of letting out lands on short building leases is, as it has been, the cause of the wretched character of the edifices which form our streets, terraces, avenues, and even suburban villas.

It is not unusual for speculators (and all men who add a row in continuation to the rapidly running "Suburbæ," are speculators) to take blocks on terminable leases for 90, 80, 70, 60, 50, and even for periods so short as 20 years. In doing so they naturally look to a profit from the new erections to be founded thereon, and, of course, they must so manage the capital disbursed, as to make it return principal, interest, and profit: in order to do this, the cheapest possible mode of construction must be adopted, the worst and least costly materials selected, and the greatest celerity in the operation must be compassed. The inducement held out to the builder is an immunity from rent for the two first years, or, as it is termed, two years are free, at a peppercorn: perhaps before the lapse of one year the ground

* A similar suggestion made by us some time ago was re-echoed by many of our contemporaries with favour.—Ed.

is covered; and, in this case, the builder lets off his houses, thus receiving one year's rent before he himself is called on. The work, run up green and in skeleton, ill-completed, is plastered over, gets a surface of paint, and is tenanted with confidence on leases of 7, 14, or 21 years; and the tenant is little solicitous about the durability of the house, seeing that he can relinquish at the termination of seven years.

Before the Buildings' Act passed, and that the thickness of walls was regulated according to the scale of the structure; numberless were the instances of subsidence in foundation, and prostrature of whole ranges of houses.

Since that enactment, such accidents (if that can be called an accident, which falls out from a defective design), have been of very rare occurrence; but even since the district surveyor has been enabled by that Act to interpose his authority, several houses have sunken, chiefly through the excessive rapidity of carrying up high walled fabrics, and perhaps upon loose or mixed, or watery subsoils.

By the way, this Buildings' Act, though in most respects useful, has been discovered to be, in the working, not only harassing to the architect, expensive, and often tyrannical, but to be also very imperfect in its provisions, and prescribing in many cases general rules, which cannot be applicable in all cases—and stopping short where restriction ought to be interposed.

But this is perhaps beside the present consideration, which touches the selfish policy of grasping landlords, who on short leases, obtain the outlay of capital beyond computation on estates, that in one, two, or at most three generations, must fall in to their family inheritance.

There are many estates in the metropolis which fifty years back were worth 3*l.* an acre, as cow pasture and dairy ground, now realizing from 1,000*l.* to 2,000*l.* per acre per annum! Many within thirty years, which were brickfield roughs, now return half that rental, and in another generation these same estates on which the property of thousands has been outlaid, will, in some instances, yield, to the colossal proprietors, from 100,000*l.* to 500,000*l.* per annum!

Throughout the continent of Europe, no men are to be found so prodigal of their families' substance as to build upon a terminable lease—no, not even in Paris—for every founder of a house will have *his own freehold*, and will build on no other. No, this custom is purely English, and as even in the rural parts of the country it is not usual to build on leases, but only in towns, it may be called the *borough* English custom. It is true that much English territory is in the hands of the Church, and here, as no title in perpetuity can be given, we sometimes find a flimsy structure run up, or an inconsequent repair performed: indeed, the general aspect of Church property is, on this account, much inferior to the surrounding country; for it is a bane to all solid and intrinsic improvement.

We cannot argue that the lessors do any actual wrong to the foolish builders, who, perhaps, may have counted the cost and all contingencies, but we can infer that a wise and paternal Government should throw the mantle of protection (a phrase in which many of our magnates delight) over the people who are, or ought to be, the object of their cares.

The lapse of a lease, on which a sum of 10,000*l.* has been expended by a father or grandfather, is the absolute *confiscation* of so much property to the heir of inheritance. In most cases, preference is given to the lessee in possession, but this is not always so, even at a rack rent, and often a renewal will not be granted on any terms, until the lease may have lapsed to twenty years, or to the period for extorting an inordinate sum, amounting to a fee simple purchase for renewal!

If the buildings generally in London are of a character as to solidity inferior to those of Paris, Italy, or, indeed, of any European civilized city, the occasion of the evil is not that John Bull likes a crazy tenement, but because the landlord class have systematised the custom of granting short leases;—it is because the landlords are the legislators, and, taking advantage of the growing value of building sites in a great trading community, they hedge about their heritages with indefeasible rights, and find it easy to draw from liberal prosperity the earnings which are so largely amassed. The Buildings Act itself is an emanation from the landlord class; it is calculated for their interests, which its operations tend to strengthen. It aggrieves the poor builder and the humble tradesman, and it results in the consolidation of aristocratic wealth. It may be alleged that there is no remedy for this species of transfer of the wealth of the community to the privileged class. Such is not the fact. Let the case but touch the Legislature, how soon a remedy is discovered for an abuse or a grievance! *Ex. gr.*: The landlord proprietors held large tracts of land, about ten years back, on *copyhold tenure*. Such titles to estates are commonly encumbered with fines and heriots on death or alienation; and although the fees were ordinarily fixed, or at most a year-and-half's rent of the estate so held, yet the levy of heriots, on the best lease (and I have known estates of only *five hundred* acres to be saddled with as many as *thirty*), was found to be irksome. Well, straightway a Bill was brought into Parliament to *enfranchise copyholds!* This was done in the year 1839, and it was carried,—for the legislators were landholders!

It may not be amiss here to mention a fact which occurred in a home county. A law lord, the holder of some copyhold land, being ill, was reported dead; the lady of the manor sent in directly and marked his coach-horses, his nags, his fine bred cows (for lords are great breeders), and the choicest of his herds; his lordship, however, recovered—an apology was made by the lady, who, of course, was rejoiced at the resuscitation. The heriots were released; and the judge, for such he was (and no bad judge), lived long enough to lend a helping hand to the exoneration of copyhold tenures from those iniquitous exactions.

Thus it is that some lessee legislators should aid the people in obtaining the *enfranchisement of leaseholds*.

No measure of the executive could give greater satisfaction to the householders of England than by enabling them to liberate their habitations from the grasp of the leviathan lord. There could be no injustice in enacting that a lessee should have the right of purchasing his house or houses at an equitably fixed amount, according to the value of money and the extent of his tenure: the landlord would have his money and the tenant his house.

Many would purchase on such terms, if it were made compulsory on the landlord to capitalize his interest on the requirement by a tenant to purchase; and although perhaps not one-fourth part of the occupiers of houses could buy their leases, yet those laying out money on building plots would, under such state of the law, very rarely expend large sums in erecting new buildings of a good description on leasehold lands at all, seeing that the value in fee of the building site could be bought at comparatively immense advantage.

When men build on their own *terra firma* they pay due regard to solidity, and by consequence to the architectural elevation of the tenement, which is then destined for posterity, as well as for the convenience and surety of the designer.

As at present, under the evil of transitory property, men build against time, not for time. A practical builder can calculate his erection for the range of 30, 40, 50, or 90 years, just as an engineer may the range of a *shell* which is intended to explode at the termination of a given parabola.

By such a measure architecture must improve; the security of the public must be increased in their habitations; it would repay amply to make houses fire-proof, more solid, and more ornamental; but, above all, such a law would put a stop to the growing *sin* of the rich, who are "adding house to house, until there shall be no place left,"—who are monstrously absorbing all the property of the towns and cities of this empire, and by unhallowed accumulation erecting their family possessions into principalities of unnatural wealth, widening the gulf already too broad between the great and the poor; whereas, by the proposed system, a large class of proprietors must arise on the basis of property, which will be as it has been always increasing, and the interests of the many must finally tend to the safety of the State, and of those institutions which it is always the interest of property to defend.

Having before alluded occasionally to this plan, it is submitted, as the more appropriate source of such a scheme, to THE BUILDER, by

QUONDAM.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT an ordinary meeting on the 18th inst., Messrs. C. Beasley, G. Judge, jun., and E. Paxon, were elected associates. A letter was read from Herr G. Hetsch, of Copenhagen, with lithographs of buildings, and a volume of ornamental designs engraved in outline. Amongst the donations was a MS. volume from a Dutch architect, containing notices of 100 Dutch architects, from the middle ages to the present time.

Mr. Burn commenced a discussion on the merits and defects of sea sand in the formation of mortar, and expressed his opinion that an analysis then laid on the table bore out his own feeling, that blown sea sand was not a cause of damp in houses. Mr. W. W. Pocock mentioned, that in two houses in the Isle of Wight near the sea, built simultaneously on sea sand, covering a stone foundation, saline to taste, one finished with pit sand was perfectly dry, while that in which the ceilings were worked out with sand brought from the sea-shore gave water out to the extent of dropping. He added that a chemist supplied a powerful wash, applied boiling hot, which at once removed the evil; and appealed to Dr. Dickson on the subject. Dr. Dickson mentioned that sulphuric acid in an earthen vase placed in a damp room would soon absorb the vapour: and Mr. C. H. Smith suggested alum might have been employed. Mr. Donaldson pointed out that sea sand could be considered useable only in cases of *blown* sand, *i. e.*, when well washed by the rain.* The honorary secretary then read a communication from Messrs. J. and T. Smith, of Darnick, on the use of Whinstone rubble in construction of bridges, with details of one lately built over the Tweed at Ashiestiel, price 1,200*l.*, 131 feet 6 inches span, 16 feet wide in the middle,—versed sine in proportion: usual construction, except 40 feet in middle solid.

Mr. Burn cautioned the junior members against the impression that this was a good material for construction.

Messrs. Fox and Barrett's patent floor was explained, and a plan of Northwoods was exhibited.

## ON THE MARBLES AND ORNAMENTAL MASONRY OF THE BRITISH ISLANDS.†

THE following account of the marbles and ornamental masonry of the British Islands has been composed, simply, with a desire to direct attention to a subject which has received the undivided study of the writer for some years, and in the hope that the advance in this department of English manufacture may be more extensively known and appreciated as one of the most interesting to the admirers of British works.

It is not intended to enter upon a classification of the different substances known as granite, syenite, porphyry, sandstone, marble, alabaster, &c., nor to examine their distribution in the geological series or their mineralogical constitution or chemical composition (all interesting in their several places), but simply to give an account of our native marbles, and other substances, which have been, and those which may be, used for ornamental purposes.

The mineral productions of our native country cannot fail to occasion surprise and delight, arising from their wonderful variety and adaptability to use.

However, before directing your attention to the ornamental masonry of our own land, I will briefly refer you to some places, both ancient and modern, where such work has been practised.

It will be observed that, from the earliest

* Our own views on this subject have been already stated at some length. See p. 361 *ante*.—ED.

† The following paper is the substance of a lecture delivered to the members of the Western Literary Institution in Leicester-square, by Mr. Robert Henson.

periods, both marble and other stones have been used, either as contributing to utility or administering to luxury; and this remark applies not only to those substances of a soft nature, easily to be worked, but to those of adamantine hardness, such as porphyry and granite, which are most difficult to cut. In visiting the Egyptian Saloon in the British Museum, the interest and astonishment produced by those sublime fragments of the ancient Egyptians, is greatly increased by the knowledge that these substances resist the finest tempered steel. The intense hardness of some may be judged from the fact of a workman having once been employed to make a hole in one of them; but after spoiling some dozens of drills, and wasting several days' labour, he was compelled to abandon the attempt.

But although a workman at that time did not succeed in so small a matter, works are now being executed in a material equally hard and durable as the Egyptian stones; I allude to the sculpture in Scotch granites. In various parts of the world at this time the different substances found in their several localities are worked into form, some of them of intense hardness; for instance, in Sweden porphyry is worked into pedestals, vases, &c.; in Germany, agates, jaspers, and bloodstone, are cut and polished in the most surprising manner. In some mosaic-work lately brought from the East-Indies, flowers, fruit, and other devices are formed with bloodstone, jasper, cornelian, agate, and other coloured stones equally hard, and inlaid in antique statuary marble: they formed cornices and pilastres in the buildings whence they were brought. The green carbonate of copper, known as malachite, is much esteemed; it comes from Siberia, and the Russians manufacture it into some most elegant forms. It is worthy observation that until recently this substance was found only in Siberia; but now it is found in considerable quantities in South Australia.

The rock of Gibraltar, by the soldiers garrisoned there, is made into a few simple forms, the most usual being models of mortars and cannon, some of which exhibit the stratification of the stone very beautifully. The stone of which the island of Malta consists is worked by the Maltese into a number of very elegant devices; but those most worthy attention are the models of architectural ruins, which they execute with surprising accuracy of detail, the stone being well adapted for such kind of work. In the lava obtained from Mount Vesuvius, the Neapolitans manufacture very beautiful cameos, intaglios, and other ornaments.

The Egyptians were remarkable for cutting small ornamental objects; and in the Egyptian-room (British Museum) upwards of twenty different kinds of stone are exhibited. In the sacred writings the terms crystal, agate, precious stones, costly stones, pleasant stones, and such like, occur frequently, and under such different aspects, that it scarcely can be supposed they were only used for jewellery purposes or personal ornament. The Prophet Ezekiel speaks thus of Tyre:—"Syria sends her traders to thy markets, and brings thee purple embroidered work, fine linen, rubies, coral, and agate."

When speaking of the materials collected for the building and embellishment of the temple, David mentions, onyx stones, and stones to be set; glittering stones, and of divers colours, and all manner of precious stones and *marble stones* in abundance; therefore, as the precise use of these stones is not mentioned, perhaps it will not be presuming too much to suppose, that the most skilful artizans were employed to produce ornamental works in marble of the most elaborate description to adorn the temple, thereby adding to its magnificence and grandeur. It cannot be doubted, that ornamental marble-work for interior decoration was much used; and in the book of Esther, inlaid pavement is particularly mentioned,—a pavement of red, and blue, and white, and black marble.

*British Marbles.*—The marbles of the British islands, until recently, have been almost disregarded, and this without any satisfactory reason being assigned. One reason, probably, why our own productions have not been more used for useful and decorative purposes may be, that the stone is not found in sufficiently large masses: but this remark does not apply to all, for some are obtained of a size adapted for pillars, tables, and chimney-pieces,—and in the new Houses of Parliament, for internal decoration, where marble is intended to be used, the whole will be the production of the United Kingdom. The importance of introducing into general use marbles the production of this country has long been recognised, for on reference to a report of the Society of Arts, so far back as the year 1806, they offered prizes for specimens of British marbles to be sent in to their museum.*

In the minds of many, an extraordinary prejudice exists against English marbles, and no difficulty arises in the attempt to shew them that their views are groundless. Their feelings may, perhaps, have arisen from the fact that no place existed where a view could be obtained of a collection of native marbles. It is worthy of observation that the British Museum, with its splendid galleries of minerals, does not possess a perfect collection of British marbles. But this chasm no longer exists; it has been filled up in a manner alike honourable to its founders as to those gentlemen who are bringing it to so high a state of perfection,—I allude to the Geological Museum, in Craig's-court. This museum has been formed for the purpose of shewing the mineral wealth of the kingdom; and in it may be seen examples of metallic ores, building stones, granites, and marble.

*Spar.*—In England, ornamental masonry appears to have been carried on the longest in Derbyshire; which county is singularly rich in mineral productions; yet, notwithstanding the great variety, it is remarkable, that with the exception of alabaster (to be noticed hereafter), the masons in that part never directed their attention to any other substance beyond fluor spar. A work, published nearly fifty years since, upon the minerals of this country, mentions thirty varieties of spar, and, in his description, the author says, it is "impossible to account for the great variety and singular disposition of the veins and sudden contrast of the finest colours which occur in this substance.

The objects originally made of spar were urns, vases, columns, and obelisks, but generally they were solid lumps of stone, and from their great weight, most inconvenient to move about. But later works, besides being copies of the most approved forms of the antique, are manufactured very thin and light, so that a taper placed within displays the most extraordinary and richest colours in the mineral world. Apart from its splendid veins and hues, this substance is valuable from its being peculiar to this country.

A prodigal waste of this stone was once carried on when abundance could be obtained from the mine, but now it is extremely scarce and expensive, the price having risen from 14*l.* to 60*l.* per ton, and even larger sums have been given for very fine specimens. The spar, or blue-john, as it is locally termed, is not found very large; some pieces, however, have been obtained about a foot in thickness, but are very rare, the usual thickness being only three or four inches. Some persons imagine that the fluor spar is obtained from a quarry of that substance, but this is not the case, it is only found in detached masses, in holes or fissures of the limestone rock.

The first mill that was built for Sir Thomas Lombe, at Derby (who introduced the manufacture of silk into that town), was at a later period converted into a manufactory of spar goods, and being by the side of the Derwent, all the lumps which were considered useless were thrown into the river, but, as before mentioned, the spar having become scarce, when the water is low, persons go and dig in the bed of the river to obtain some of those pieces which were thrown away forty or fifty years ago: they make them into smelling-bottles and other small objects, and, as the finest stone was found at that time, these articles are most beautiful specimens of the substance.

This stone is highly esteemed on the continent, and the larger specimens are considered worthy of a place in the galleries of continental monarchs and nobles.

Among other writers, Sir Gardner Wilkinson, in his history of the ancient Egyptians, supposes that the Murrhine of the ancients was certainly fluor spar, and he arrives at this conclusion, not only from the accounts given of it, but from the circumstance that wherever a representation is attempted, it appears to aim at producing those peculiar colours and wavy indications which are seen in these transparent and veiny specimens.

Few subjects have excited more discussion among the learned than the question of Murrhine; what it *really was* being the great and still undecided point; this view of it, however, makes the fluor spar more interesting, and it will further rise in the estimation of all who remark its extraordinary beauty.*

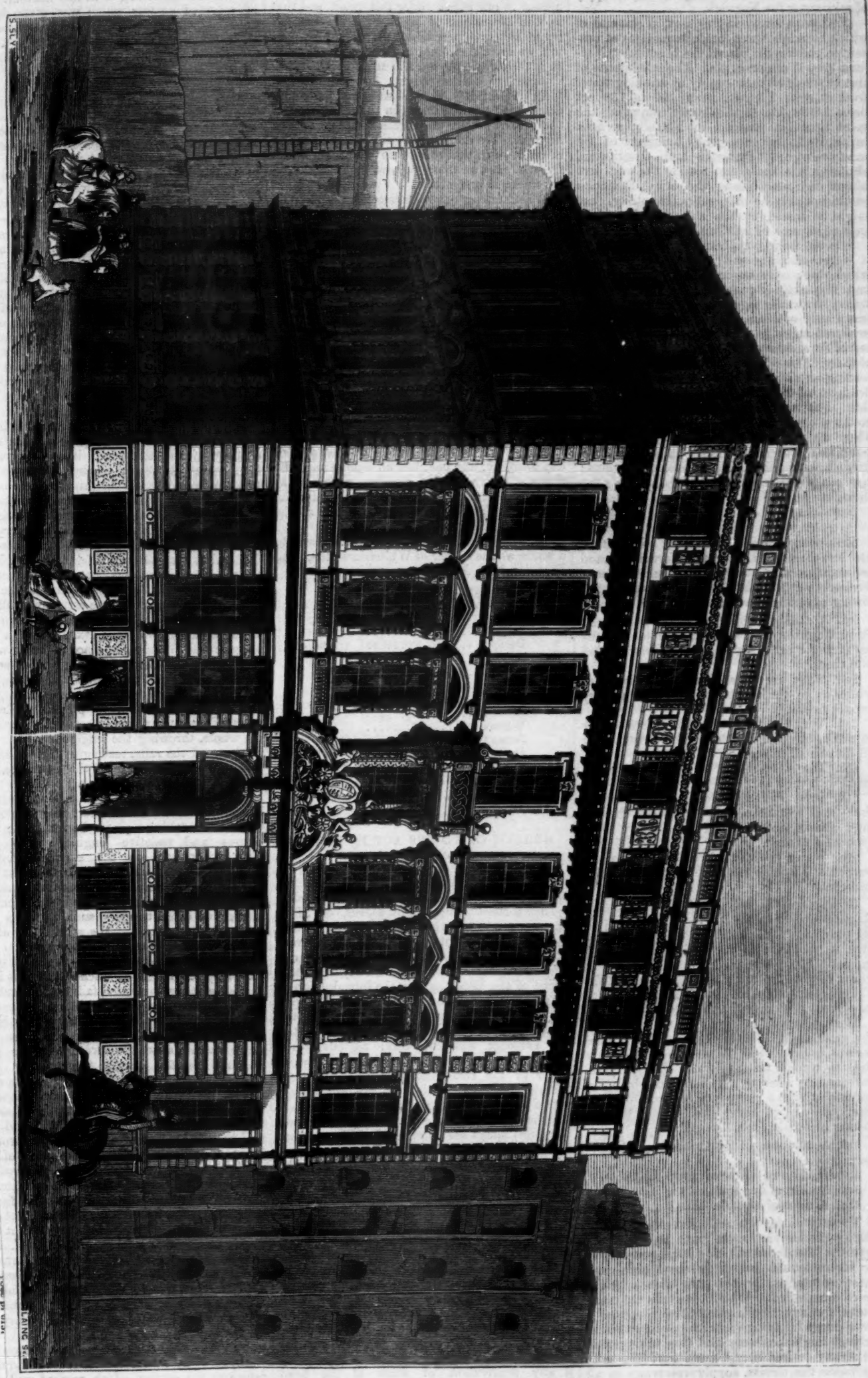
* Vols. 27, 28, and 30.

## NOTES IN THE PROVINCES.

A CHURCH with chalk columns, pillars, &c., not even seasoned, has of late been in course of erection at Prestwood, Bucks, according to the local *Chronicle*, and got on swimmingly till the frost began to operate on the moisture in that celebrated "absorbent," when the columns, pillars, &c., split, of course, and crumbled into pieces; and, besides a damage to the amount of at least 100*l.*, it is said, on this 'cheap material,' will occasion the additional expense of a replacement in stone, making good the old proverb,—'penny wise, pound foolish.'——The restored Norman Tower at Bury St. Edmund's has been opened to the public as a thoroughfare through the area, and as the bell-tower of St. James's Church. ——The new Savings Bank at Cambridge has been opened. It is in the Italian style, with two fronts, and contains a hall, 18 feet square, bank room, and actuary's residence. The architect was Mr. John Smith, of Cambridge. ——The new County Gaol at Winchester, which is progressing towards completion, is compared by a contemporary to a "huge barrack of water-closets," a circumstance attributable, we presume, to the fact of its being a building of comparatively confined dimensions, carried out on the separate system, and unjust, if intended to reflect on the architect. It is concentradiative in form. "Gas is laid on to every cell, and the whole building is warmed and ventilated by means of nine large boilers placed round the central portion, immediately under the shaft or tower which forms so conspicuous a feature of the elevation." The chapel and exercising grounds are also of course concentradiative.——The octagonal font in St. James's Church, Taunton, has been restored and removed out of the mural recess in which it was concealed. Two of the figures on it correspond with those remaining in the niches of the tower, and it is believed to be coeval with the church, which was built in the thirteenth century. Mr. A. A. Clarke, of Taunton, an artist, has made drawings of it, which, it is said, are to be lithographed.——A number of workmen, says the *Liverpool Albion*, are engaged laying down in the grand vestibule of the Town-hall a floor of encaustic tiles.——The Woods and Forests, says a Carlisle paper, have, with characteristic taste, roofed Lanercost Abbey with blue slates, and have thereby succeeded in making it look very like a tithe barn.——Christ Church, Penrith, is nearly completed. It is built of red freestone, and is Gothic in style, with a great octagon dome on the west end, tapering to a point. The interior consists of nave, chancel, and two side aisles. The distance from the chancel to the west-end is 100 feet, and the width from north to south 45 feet. The nave is separated from the side aisles by a number of pillars, supporting Gothic arches, which extend east and west, and are formed of white freestone, from Lammonby Moor. An arch, 27 feet in height, spans the nave on the east, and separates it from the chancel. A stove-room is to heat the church by means of iron pipes. The pulpit is to be of white freestone. ——The Glasgow Association for the establishing of lodging-houses for the working-classes, have opened their new lodging-house in Low Green-street.

BUILDERS' BENEVOLENT INSTITUTION.—A subscription ball is to be given at the Freemasons' Tavern, on the 9th of January, in aid of this institution.

* The remainder hereafter.



THE ROYAL INSURANCE BUILDINGS, LIVERPOOL.—Mr. WILLIAM GRELLIER, Architect.

## WATER FOR NORWICH.

Sir,—I submit for consideration the following suggestions for obtaining an ample supply of rain-water for Norwich.

We have a street in this town at one end of which (though there are obstructions at present in the way) is placed the beautiful "Norman keep" of our castle. The inhabitants of this street draw their supply of drinking water from a well, I think, from 120 to 130 feet deep. One side of this street commands the most beautiful prospect in Norfolk, *perhaps* in England, now shut out by buildings of the most wretched character and description, although it is the direct road to the west part of our environs. Along the street fountains would not only be of great public utility, but might be made, by the aid of architectural genius, sources of infinite pleasure.

I lived, during a period of three years, in a warm climate, and occupied a house in which there were never less than ten persons, and frequently during summer upwards of *twenty* for weeks together; and although there was a well within a few feet of the door we preferred making use of the rain-water, preserved in a *sunk stone tank*, during *every* part of the year, and for all purposes, the roof affording an abundant supply, notwithstanding droughts of six weeks' and two months' duration. I cannot hesitate to believe that in this country *quantity* will not be the objection. There we had wood roofs, and wood supplied our fires, consequently the water which fell from them required no previous preparations; here coal fires give us the trouble to purify the draught.

Norwich. W. T.

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Rain-water fountains, provided with filters, are inexpensive in their first formation, and are maintained at small cost in full efficiency for many years. They possess, also, the following advantages, viz.:—

1st. A certain supply of really pure water throughout the year, at the rate of ten gallons per diem for each square yard of surface led into them.

2nd. They are accessible in the depth of winter as in the height of summer, for they cannot freeze.

3rd. They yield not only the purest water to drink, but that which is indispensable for all household purposes.

4th. The streets may be conveniently watered with their aid.

5th. They are certain resources in cases of fire; and instantaneously applicable by the most simple means, which a child may comprehend and make use of.

6th. Water, the grand requisite for sanitary purposes, is by this means obtained abundantly and cheap.

It appears by the Norfolk Rain-Gauge Register that one acre of land receives during the year 13,923 hogsheads; this quantity will give to each square yard of roof (within a fraction) 150 gallons. A cottage, therefore, with a roof of no more than 25 square yards, will give ten gallons and two pints per diem to its occupants throughout the year.

The tanks will be circular and sunk into the earth, built with brick, laid with Roman cement, and faced with the same, and sufficiently *deep* to contain an iron frame in four parts surrounding a centre man-hole, in which (for cottage supply) a pump will be fixed for common use. Upon these iron frames the following materials should be placed:—

1st. A stratum of oyster-shells, 3 inches deep.

2nd. A ditto of charcoal, same thickness.

3rd. A ditto of fine sand, ditto.

4th. A ditto of shingle, ditto.

These will form a sufficient filter, and (I think) render the water pure and clear as crystal. The landlords of cottage property to be instructed to lead their down pipes into these receptacles, through such tubes as might be recommended. When the tanks are made use of for street and ornamental purposes, a force-pump (having an India-rubber hose tubing) might be fixed—and this tubing may be of any desired length—and would be used to water the streets, supply reservoirs in all the surrounding houses, and also to extinguish fires.

## BLIND BUILDERS.

We have but one object in giving the lists of ill-considered tenders which occasionally appear in our pages under this head, and that is, the advantage of builders. We did not adopt the course without due consideration, and we are satisfied the determination we came to is the right one, and will effect good.

Amongst correspondents on this subject "An Architect" thinks we may be sometimes unjust to the *lowest* in the application of the term, which may rather apply to the highest. We do not pretend to say which is in error,—but that one is so when such differences exist as those we have had occasion to chronicle, is undeniable.

When, taking two instances from a pile now before us, we find the highest tender for a new shop front in Islington 350*l.*, and the lowest 195*l.*, and thirteen tenders for certain work in the London Mechanics' Institution ranging from 114*l.* down to 38*l.*, the justice of the epithet, and the necessity for some proceeding to make builders think upon the subject, must be evident.

One leading builder, in a letter containing an assertion which is necessarily wholly groundless, and as it seems to us somewhat impertinent (namely, that we "have upon this subject, no correspondent of high standing in the building business"), threatens us with legal proceedings if his name should again appear in our paper under such circumstances. We have no desire to annoy, still less to injure, any one, but no foolish and idle threat of this sort will prevent us from continuing in a course which we consider for the general good, so long as such tenders as the following, for example, are made.*

Tenders delivered for sundry alterations to a house at the corner of Whitefriars-street and Primrose-hill. Mr. Malpas, architect.

| | |
|---|---|
| Wormsley | £1,134 |
| Park | 959 |
| Bugg | 910 |
| Lyons | 903 |
| Darby | 800 |
| Netting | 780 |
| Simmons | 760 |
| Joseph Greenwood | 705 |
| Dean | 695 |
| Pilbee | 687 |
| Watson | 670 |
| James Greenwood | 660 |
| James Judd | 647 |
| Collins | 637 |
| Cox and Hart | 595 |
| Howlett and Collett | 528 |

## HEALTH OF TOWNS ACT IN DOVER.

COMMISSION OF INQUIRY.

Mr. R. Rawlinson, one of the inspectors appointed by the General Board of Health, opened a court of inquiry at Dover, on Monday, the 4th inst., which continued for several days. A great number of witnesses were examined, most of them voluntarily, and our informants say abundant testimony was produced of the necessity for the introduction of far greater powers than any local Acts now give the governing bodies in this town. Of the defective supply and bad quality of the water, the evidence was complete; no established rule of charge appears to have been adopted by either of the two companies who have partitioned the town; and there are many parts where the mains are not introduced. Gas is supplied to the public at 7*s.* 6*d.* per 1,000 feet; the street lamps are charged 3*l.* 3*s.* per annum for batwings, consuming 5 feet per hour, and 35*s.* for three jets, burning 3 feet per hour, the Company furnishing mains and lamps. Of the general salubrity of the town, and the healthy state of the inhabitants, the medical witnesses gave satisfactory reports. The commissioner, attended by Dr. Soulby, Mr. Huntly, architect and surveyor, and the surveyor to the Paving Board, made a personal inspection of most of the localities, many of the poorer districts presenting a scene of the most disgusting filth. The sources of the river Dour were next visited; but the immense amount of mill property situated on the stream, and which must be compensated if any deprivation of water at the head took place to any extent, such as that for the supply of a large town of 20,000 people, is thought to render it necessary to abandon all idea of accomplishing it in this manner. The oft-repeated answer which was given by the poor cottagers, that "we do not live in this condition from choice," is convincing that if you give them the means they will be clean.

* This list has been forwarded to us by seven different parties.

## RAILWAY JOTTINGS.

Notices have been lodged of application to Parliament for its sanction to upwards of twenty amalgamations in England, and eight in Scotland. The number of plans and sections lodged in connection with railways down to the last day for their reception was twenty-nine, two only being for new lines.——A commission of practical engineers and scientific men has been recently appointed at the recommendation of the Railway Commissioners, to investigate the propriety of employing iron, and particularly cast-iron, in railway works.——The reduction in price of coal at Bury St. Edmunds, since the opening of the Eastern Union, has been equal to the amount of poor-rates levied in the town.——Notwithstanding the use of powder magazines with trains, and the prohibition of other modes of conveying gunpowder and other combustibles, so much carelessness in the disposal of dangerous materials such as these, and that by the railway officials themselves, has been occasionally evinced, that complaints and warnings have repeatedly been given by prudent persons to more than one of the principal companies. Prohibiting other modes of transit, and taking special charge themselves of such materials, it certainly is incumbent on them to carry out the most stringent regulations for their safe disposal at every stage of their transit. Nevertheless, an accident has just occurred on the Eastern Counties lines which perilled the lives of numerous parties whose escape was all but miraculous. Nearly two cwt. of powder in two separate barrels, on being taken out of a train magazine at Witham, in place of being warily and at once disposed of in a place of safety, were carelessly put down in the very way of a mail train, which ran right over them, the engine crushing them to pieces, while the sparks from the grating in a moment exploded the whole, throwing the engine upwards and sidelong off the rails, tearing up the permanent way, smashing several of the carriages, and arresting the train with a sudden shock. Had the sparks taken even a single second longer to reach the powder, the explosion, instead of taking place beneath the ponderous and resistive engine, must have slain every soul in the carriages behind it. Railway recklessness meets amazingly often with 'the devil's own luck:' it is, indeed, amazing, how the merest and most critical chance so often tempers such fatalities with merciful interposition. We would not advise railway officials to trust too much or too long to such chances, however.——We confess we have a spice enough of uncharitableness in us to rejoice at the continued failure of the return-ticket suspension on the different lines of railway. Taking the three last weeks *before* the eventful 1st of November, the gross passenger receipts on the Great Western were 45,572*l.* 15*s.* 2*d.* for the three weeks. The passenger receipts for the three weeks *after* the 1st November were 37,282*l.* 6*s.*; showing a falling-off in the passenger traffic alone in these three weeks of 8,290*l.* 9*s.* 2*d.*! and this, too, with 15½ miles of additional line brought into productive operation. The whole of this diminution is on the passenger traffic alone, the goods traffic continuing nearly stationary. Again, the Midland Company's traffic for the week *before* the 1st of November was 21,44*l.*; for the week *after* November 1st, it was 20,822*l.*; showing a falling-off of 624*l.* For the three weeks *before* November 1st, the traffic was 67,692*l.*; for the three *after* November 1st, it was 60,313*l.*; showing a falling-off, on the three weeks, of 7,379*l.*! Thus is clear that the railways will get less money out of the increased cost of travelling; and "the public," as the *Gloucester Journal* remarks, "may now, we think, confidently reckon on a return to the system which worked well—not only for the public, but for the companies themselves." Yet such stupid and obvious miscon-

lation and mismanagement merit no immediate benefit even from immediate repentance.——We are much mistaken if the following practice, systematically adopted on various lines, do not also prove to be a miscalculation. A traveller on the Great Western complains in the *Times*, that finding himself and his family in a second-class carriage compartment with a man and woman who were both drunk, and complaining to the guard of their indecent and insulting conduct, he was very smartly turned over to the tender mercies of a madman who had been forced into another second class carriage by a keeper and left alone! The complainant was thus compelled at length to 'stand and deliver' the first-class fare, for want of which he had thus suffered the practical joke of being 'turned out of the frying-pan into the fire,' till 'done' to a turn by roasting, failing frying.——The Torquay extension of the South Devon line has been opened, so that this "queen of western watering places" will now be placed within five and a half hours' journey from London.——On 13th inst. the large cylinder of the hydraulic press intended to be used at Bangor to raise the tubes of the Britannia-bridge was cast at the Bank Quay Foundry, Warrington. This cylinder weighs about 25 tons. It will have to sustain a pressure of upwards of 1,000 tons when at work.——The final operation of lowering the second tube-bridge at Conway, and the placing it on its permanent bed, has been effected, and the tube is now in use for the transit of trains.——Railway property has followed, in America, the same downward course as in this country.——Throughout all British America there do not exist 20 miles of railway; in the United States there are 8,000 miles.

## LONDON BUILDINGS.

### THE BRITISH ALMANAC AND COMPANION FOR 1849.*

The companion to the British Almanac contains its usual large amount of general information, including a valuable paper by Mr. De Morgan on the first Six Books of Euclid; an account of the Ordnance Surveys; an essay on the Progress of Organic Chemistry, and others. Under the head of legislation and statistics, abstracts of important public acts are given. The section on Public Improvements contains interesting notices, under separate heads, of churches, public buildings, stations, &c., and from these we make the following extracts:—

*Alterations at the Bank.*—"On first hearing that something was about to be done to the exterior of the Bank, with the view of giving it greater loftiness, we hoped that Mr. Cockerell had been instructed to reshape the centre of the south front, and there introduce an order upon a larger scale than that of the wings; and could he there have applied some of the ideas shown in his design for the west front of the Royal Exchange, the centre of the Bank, now the most unsatisfactory part in the whole edifice, would have been materially improved. As it is, very great improvement has been effected with very slight alterations, and those confined entirely to the upper part of the building. To the centre portion of the façade nothing more has been done than giving it a better and richer cornice, and adding a handsome balustrade, crowned with vases; yet even this slight change is one greatly for the better. In the wings, improvement shows itself more decidedly: there the attic has been raised several feet, and is made to form bold masses over the end pavilions of each wing, connected together with a balustrade, behind which the intermediate portion of the attic is set considerably back, whereby a most happy sort of variety is produced, together with play of lines and of light and shade. The advanced portions of the attic are admirably treated, and display some successful novelty. The window, for instance, which is introduced into each of these masses, and which is altogether so different from the usual character of windows so situated, produces an effect as pleasing as it is singular; and while it prevents that appearance of heaviness which might else have attended the increased height of the attic, the opening there serves to set off and render more apparent the solidity which prevails in the lower part of the edifice."

*Christ Church, Highbury*, "which has just been completed and consecrated, is a work highly creditable to the taste and ability of its architect, Mr. T. Allom. The building displays itself well, it being so situated that it can be closely approached and inspected on every side; and as unity of character and attention to finishing have been observed for the whole of the exterior, it is marked by an equality of merit rarer than it ought to be. The exterior, which is of Kentish rag, with Bath stone dressings, shows a cruciform arrangement, with a tower and spire within the re-entering angle formed by the nave and transept on the north side, so that it recedes from the west front. The spire has gabled and crocketted lucarnes rising from its base, and other lights of similar form, but very much smaller and plainer in its upper part. Internally the plan is equally novel and commodious, for in the centre, or at the intersection of the transept, it becomes an octagon of four wide and four narrower sides, with as many open arches, the smaller ones being on the diagonals of the plan. Besides producing pleasing perspective combinations from every point of view, this disposition allows the pulpit and reading-desk (placed against the pillars of the chancel arch), to be seen nearly equally distinctly from all parts of the church."

*New Coal Exchange, Thames-street.*—"If any thing can excuse the unaccountably queer taste shown in the new Coal Exchange, it must be its situation in such a defile as Lower Thames-street. The building was mentioned in our last as being then about to be commenced, and, with the exception of the campanile over the curved loggia at the south-west angle, nearly the whole of the exterior is erected, and fairly astonishes us, so anomalous and incoherent is it in every respect. Not only is it full of incongruities as a general composition, but many of the features and details are not merely poor and bad, but absolutely barbarous and indescribably grotesque, and apparently for the very purpose. One of the unlucky singularities in the design is, that while the other windows are comparatively plain, those of the third floor—for there are no fewer than three upper stories, which occasions a very lodging-house look—have pediments which come immediately beneath the general cornice; and, instead of resting upon string course, or dado, or being left without any thing beneath them, there is beneath each of them a nondescript something, which is meant, perhaps, to belong to them, and also to serve as ornament over the second floor windows. This must suffice, by way of specimen of the deformities here heaped together, it being quite impossible to explain forms and fancies so *outré* that architectural language has no terms for them."

*Baths and Washhouses, Orange-street, Leicester-square.*—"The front, which exhibits a ground floor and upper one, has three arched entrances, viz., one at each end, and another in the centre break. These doorways are wholly of stone, with Doric pilasters and entablatures, in the Anglo-Italian style of the 16th century. On the upper floor there are three large square-headed windows, on each side of the centre break, making, together with the one there, seven windows in the length of the front: all of them are divided by mullions into four lights, and are besides double transomed. The elevation finishes above in a series of small ornamental gables (some angular, others curved), corresponding in number and situation with the three windows on either side of the centre. Another and novel feature, although it does not belong to the front, it being in the rear of it, is a large chimney or funnel, which shows as a slender square tower rising up from the building, and may be seen from Leicester-square."

* C. Knight, Fleet-street.

## ANTIQUITIES IN CHESTER.

### BRITISH ARCHÆOLOGICAL ASSOCIATION.

It is finally determined to hold the next congress of the Archæological Association at Chester in the month of August next, requisitions to that effect having been previously forwarded to the association by the dignitaries of the church and the local authorities of the city. A committee has been formed, consisting of the mayor, Sir E. S. Walker (chairman), and other influential gentlemen of the town, and Mr. W. Ayrton is appointed honorary secretary. The proceedings, there is no doubt, will prove more than usually interesting, as the city and neighbourhood abound with antiquities which will fill the lovers of antiquarian lore with food for reflection and discussion.

The excavations that are at present going on for the drainage of the city present a favourable opportunity for observation, as relics are repeatedly dug up, or antiquities laid bare, of ancient British or Roman origin, which are worthy of preservation or of record. Last week, as the workmen were employed in digging a drain at the back of some houses in Northgate-street, they discovered an ancient urn and other relics, which are generally supposed to be of Roman origin. The fragments that were found in the urn were supposed to be the bracelets of a Roman lady whose ashes it contained. The rings also found in the urn are supposed to be the ring-money, such as were used by the ancient Britons, and described by Julius Cæsar as being in use when he effected the subjugation of this country.

The fragment of a cannon-ball, which weighed 11 lbs., and which appears to be about one-third of one, and supposed by some to be a chain-shot, has probably lain there since the city was bombarded by the Parliamentary forces under Oliver Cromwell, in Oct. 1645, when the East-gate was severely cannonaded. A subterranean passage has also been discovered passing under two of the principal streets: this is hewn out of the solid rock and sandstone, and it is just wide enough to allow one person to go along, with wider parts at intervals, used, no doubt as passing places. This passage has been opened before, and it appears its internal dimensions are 16 feet high by 5 feet wide, and divided by planks into a double roadway, one above the other, each 8 feet high. This subterraneous passage has never yet been explored; its object has been, there is no doubt, either for defence or religious purposes.

In excavating for a sewer in Eastgate-street, two pavements were found, the one 3 feet and the other 6 feet below the surface, made of round stones, carefully sorted and set in a durable manner. It may be considered that, originally, the streets were level with the rows, that they were afterwards excavated, probably for greater security in time of war, and since then, at two intervals of time, they have been raised to improve the entrance to the city, and the paving stones were not thought of sufficient value to have them removed. The rows now are from 4 to 9 and 10 feet above the level of the streets, and the ground at the back of the houses maintains its original level. The rows are thought by some parties to have been intended and used for the purposes of defence in time of war; by others it is stated they were intended as vestibules to the houses of the wealthy, and as such were used by the Romans.

Tiles have been discovered having the stamp of the imperial legion (LEG. V. V.) upon them, also tiles apparently impressed with the armorial bearings of some mighty Romans. The 20th legion, according to history, garrisoned Chester in A.D. 61. It is to be hoped that the meeting of the association in this city will be the means of preserving their antiquities from desecration, restoring those that need restoration, or, if that is impossible, establishing records of them for the benefit of the present and future generations.

Fire-proof Stairs.—Might not staircases be constructed of slate slabs and T angle iron, which might be masked by a moulded string-board, and the stairs painted and carpetted, as well as wood; and would not the roof of a second or third, or even a fourth-rate house, be light and durable if constructed with angle-iron rafters and strutts and rod-iron ties, covered either with slate or metal?—D. R.

Portable Letter-Copying Machine.—Wells and Haverson, of Gresham-street, have given us the opportunity of trying their portable letter-copying machine, which forms simply a short roll, easily put away in the travelling bag, and is very inexpensive. We find it answer the purpose very well.

## METROPOLITAN COMMISSION OF SEWERS.

A Court was held on the 14th inst., the Hon. Fred. Byng, in the chair. On the recommendation of the General Purposes Committee, that works of emergency in the Surrey and Kent divisions (the whole being pipe drainage to the amount of 1,950*l.*) be adopted, Mr. Chadwick expressed his opinion that stoneware pipes could be obtained from a person (whose name was not heard), at a great saving on the present cost.—The Clerk said that Mr. Phillips had made a report that experiments were in contemplation for making cement pipes, to supersede the use of stone pipes, which would be a great saving.

Mr. Leslie inquired what difference would be made in the price of cement pipes? What sort of cement had been used?

The Surveyor said the price would not be above half that of stoneware. No cement had been used at present, as the moulds were not ready. When they were, they proposed to use every kind of cement, with concrete and dry rubbish. These pipes would be made in three feet lengths with sockets.

The Chairman said immediate measures were pressing for the health of the population of the district. The condition of the population in this district was truly frightful, and demanded an instant remedy.

Dr. Southwood Smith said he knew from his own knowledge that in these districts fever and cholera existed to a great extent.—Mr. Broderip deprecated the saving of a few pounds in such a case on the ground of economy. Economy was very good in its way, but economy here was not to be bought with delay.—In answer to a question, the Surveyor said he had laid down a twelve inch pipe in a most offensive drain at Hickman's Folly, Bermondsey, which before this contained soil upwards of 3 feet in depth. It was now quite clear and free from any offensive matter.

Mr. Bullar then moved that the works proposed by the General Purposes Committee, be agreed to, the surveyors making such modification from time to time in the expense, as may be deemed expedient. Motion agreed to.

There appears to be still a legal difficulty to prevent the issue of the commission under the new act.

## Miscellanea.

Grimsby Docks.—The first division, as it may be called, of this undertaking, has now been brought to a close by the completion of the embankment, wharfs, and coffer-dam, which, together forming a continuous line of a mile and a half in length, enclose one hundred and thirty acres of land between high and low water, now reclaimed from the tide. Some difficulties arose in the construction of one of the piled wharfs, owing to the weakness of the foundation at that spot—a soft silty clay; but they have been entirely surmounted. The coffer-dam, which is fifteen hundred feet in length, and which stands in a very exposed position, consists of a triple row of whole sheet-piling, backed at close intervals by buttresses or counterparts of sheet-piling, the first application of the kind, it is believed, to the purposes of a coffer-dam. Minor improvements in the system of bolting have also been introduced. The piling was principally driven by means of two stationary steam-engines, giving motion to winding-drums, whence the chains were led to ordinary pile-engines, which were sometimes removed four or five hundred feet from the source of power. For the interior constructions forming the second division of this undertaking, considerable preparations have been made. The works to be performed comprise two locks, one of which will be sufficiently large to receive any vessel afloat, and a dock of nearly thirty acres. For these a considerable quantity of material is already provided and prepared, steam mortar-mills are erected, and various other provisions made. The consulting engineer is Mr. Rendel, and the resident engineer, Mr. Adam Smith.

Signs of the Times.—The great corporation of London have at length agreed, at the very last sitting before St. Thomas's-day, to cause their property at Lambeth to have a communication with the common sewers. For more than twenty years they have required their tenants to pay their sewers rate, without their having any drains whatever. Can we wonder at typhus and cholera breaking out at Lambeth? What have their bridge-masters and surveyors been about? If they were only paid for the work they do this inquiry need not be made.—A Sufferer.

Projected Works.—Advertisements have been issued for tenders by 3rd January, for the erection of the new church of St. Paul, Derby; by 22nd January, for the entire completion of the Tyne Docks of the York, Newcastle, and Berwick Railway Company, with works connected therewith; by 26th inst., for the supply of twenty-five new goods-waggons for the South-Eastern Railway Company; by 26th also, for the supply of about 420 tons of cast-iron pipes, 48 inches in diameter, and 150 tons 24 inches in diameter, for the Manchester Corporation Waterworks; by a date not specified, for about 60 tons of cast-iron gas-piping for the Southport Improvement Act Commissioners; and by 2nd proximo, for the execution of the boilers, pipes, and fittings connected with the baths and washhouses near the Yorkshire Stingo Tavern.

Wavendon Church.—It will have been seen by a notice in our pages, that the parish church of Wavendon (misprinted Waverdon) is about to be rebuilt. The following notes of the old building, as it is about to be pulled down, may not be uninteresting. It consists of nave, with aisles, clerestory, and south porch, tower at the west end, and chancel; general style very early Decorated: the piers and arches to the nave are very good, and by an unusual arrangement of the pews, which are all confined to the aisles, their full proportions are well seen. There are some very excellent two-light windows in the north aisle, and one of three lights at the east end of the same, equally good: the south aisle, the roof (which is of oak, with carved topes), and also the tower, are good Perpendicular. The chancel is now being rebuilt under the direction of Mr. Butterfield: if this be a faithful restoration, there was a fine decorated arcade on the south side. Assistance is much required in the other parts of the church, as the aisles are fast falling away from the nave.

Fleet Ditch.—From a paragraph in the London papers, it appears that about ten or more people residing at Gillingham, in Kent, have fallen victims to the Asiatic cholera. Their residences were on the banks of a creek, continually being stirred up by the tides. Now, at the last visit of the cholera in London, more genuine cases occurred on the line of the Fleet Ditch than in any other part of the metropolis; and it does seem to me that the attention of the Commissioners of Sewers might be humanely directed to that abomination, the existence of which (nearly wholly uncovered from Peter-street to Ray-street, Clerkenwell, a distance of 1,000 feet) is not known to the public in general. I feel assured, that if you can cause the ditch to be covered you will add another laurel to the many you have already gained. In addition to the Fleet Ditch being always open, and the soil and filth from the north of the metropolis always passing through it, the most obnoxious trades are carried on, and the whole neighbourhood is poisoned by continued stenches.—W. P. G.

The New Statue of the Duke.—The marble statue executed by Mr. Milner has been placed on its granite pedestal in the Tower, between Traitors' Gate and the White Tower. The figure is about 8 feet high and the pedestal 10 feet. The drapery is chiefly a cloak with cord and tassel.

The Benevolent Fund of the Institute of British Architects.—Sir: I felt great astonishment at the result of the meeting on the 11th inst.—viz., "that the fund is to be distributed by the treasurer of the Artists' General Benevolent Institution,"—than which, I think, a greater mistake could not have been made, inasmuch as it will prevent the members of the profession taking that interest in it which they properly should do. I could not attend the meeting, but I understood that the intention was to place the fund under the control and distribution of the council of the Institute, and it would then with certainty have the support of all the members of that body. Besides, one great object in having funds for benevolent purposes attached to the different professional societies, is, that relief may be rendered to deserving persons in a private and delicate manner, otherwise the unfortunate may as well apply to one of the various societies for the general relief of the unfortunate, to which most of us subscribe, or to their parish authorities. Chas. Lee, Fellow.

Society of Arts.—On the 6th inst., Mr. N. Holmes read a paper on the present state of electricity as applied to telegraphs. After giving a short history of the subject prior to Volta's discovery of the voltaic current in 1800, overcoming the difficulties presented by the use of free electricity, he dated the progressive advancement of the science from Orsted's grand discovery in 1819, of the rotatory influence exercised by an electric current upon a magnetic needle, which was immediately followed by that of Arago's, in the formation of the electro-magnet. The introduction of the telegraph into this country took place in the year 1837, at which time many persons were engaged in the practical carrying out of the idea; but it was not until Professor Wheatstone's researches in the more theoretical portion of the science that the requisite perfection was obtained. After alluding to the numerous variety of printing telegraphs and alarms, Mr. Holmes exhibited his new signal, in place of the old clock-work bell, producing the sound by means of an air-whistle.

The Chichester Competition.—Sir: We are indebted to you for the letters which have already appeared on this subject. I, also, sent for particulars, and at the foot of my communication asked the following queries:—1. Do the Committee intend giving one or more premiums? If so, the amount. 2. Will the author of the selected design be employed to carry out the works at the usual commission? These questions, Mr. Editor, I think you will say were *fair*; mark, then, the reply. "With regard to the payment, the Committee have not come to any decision about it; I think (*think*) they will enter into some arrangement with the successful competitor as to the amount (!!!) of commission for which he will undertake the superintendence, &c." Lucky dog the successful competitor! He ought to go down on his knees and thank the committee for the blessings intended.—Sufferer.

Sawing Timber in Curves and Bevels.—In a case at Nisi Prius, the Queen against Mr. Julius Smith, instituted on the ground that the Crown was deceived in granting him a patent for an alleged invention of a foreigner, such invention not being new, Mr. Justice Wightman, in summing up, stated, that "on 3rd June, 1843, Mr. Smith took out letters patent for certain improvements in machinery for sawing wood. The claim was for mounting the saw in an interior frame, supported within a saw gate, and enabled to slide laterally, and of guiding the saw with a fork guide lever. The most complicated part was the bevelling, which was contrived by three processes—the sawing process, the process for turning the log, and the process determining the angles to be given to the levelling." The judge then left twelve questions to the jury, who gave such answers that the verdict was directed to be entered for the Crown on several of the issues, and for the defendants on the remainder; the latter with leave for the Crown to move to enter a verdict. Scientific evidence had been adduced on both sides, and working models exhibited in court.

Charcoal as a Deodorizer.—The Irish Amelioration Society seem to contemplate the extensive manufacture of peat charcoal for this as well as other purposes,—"peat charcoal, so prepared (by a patent process), having on many trials been found to be a most complete deodorizer, immediately by admixture converting feculent matter into a dry inodorous and portable manure, of highly fertilizing properties, and fit for immediate use." They propose selling it "at a price which will allow of its being used for deodorizing the sewage matter of London and other large towns." Charcoal is a well-known deodorizer. It seems probable that the dry inodorous portable manure, proposed to be manufactured by a "French Count and his engineers," at Birmingham, on terms with the Town Council, would have been thus prepared.

The Royal Academy.—Mr. Cockerell will commence his course of lectures of architecture, to the students of the Royal Academy, on Thursday, the 4th of January. The following gentlemen have been admitted students in architecture:—Messrs. John Robinson, Charles Nathaniel Williams, Francis Freeman Thorne, Francis George Widdows, Henry Simpson Legg, Edward Middleton Barry, George Payne, and William Francis Gom.

RESTORATION OF HEREFORD CATHEDRAL.—The *Hereford Journal* says that the following important resolution has recently been determined upon by the dean and chapter of that cathedral, from which beneficial results may be confidently expected to follow, not only to the decoration of the cathedral by specimens of the art of glass-painting, but its preservation from the disturbance and injury of its walls and floors. The resolution alluded to is as follows:—"That in future all burials in the cathedral church shall be charged with the payment to the fabric funds of one hundred guineas; in the lady arbour and cloisters, of seventy guineas; in the churchyard, of fifty guineas. That none but flat stones shall be laid in the lady arbour, cloisters, or churchyards,—for each of which twenty-five guineas shall be paid. That no monuments shall be admitted into the cathedral but such as are strictly of the same character as those coeval with the fabric, the charge for which shall be one hundred guineas, the design to be first submitted to the dean and chapter. Should such monuments be of special character, the dean and chapter will consider what amount might be remitted; that they will allow, instead of monuments, the erection of painted glass memorial-windows, provided the design and artist be approved of in writing by the dean and chapter, upon a small payment as acknowledgment for the permission."

ABRIDGING A STORY.—Messrs. Bull, silk-throwsters, having bought a large silk factory at Congleton, found it necessary, from the instability of the upper portion of the brick-work, to reduce it from a four-story to a three-story building. To pull the roof to pieces, reduce the walls, and then reconstruct the roof would have been very expensive. Thomas Shepley, an ingenious mechanic, who had long worked for Messrs. Bull, offered to lower the roof without taking it to pieces. After preliminary preparations for conveying the bricks to the ground, he lifted, with long levers, alternately, the beams which supported the roof, and supported them with small blocks of wood, whilst he lowered the walls one course of bricks at a time, so that the roof was gradually and imperceptibly lowered about eight feet to the top of the third story, without the least accident occurring, and without the breakage of a single tile, or crack in the roof.—*Bridgewater Times.*

FALL OF RAILWAY ARCHES.—A correspondent, alluding to the fall of arches, urges the use of wedge-shaped bricks now made by several parties, and says many of the accidents occur through men of all trades being allowed to take the several contracts. "What person in his senses," he writes, "would employ a carpenter to make a coat? without it was a box coat, and then it would be better to go to a furnishing undertaker."

THE ELECTRIC LIGHT.—Messrs. Staite and Petrie delivered a lecture on their electric light, at the Western Literary Institution, Leicester-square, on Monday last, and had a crowded audience. They declined to enter into any explanation of the construction of the apparatus until after the 14th of January, when the patent will have been specified. We have still to remark on the very brief space of time during which the light is allowed to remain visible.

THE CHURCH OF ST. MARY-AT-HILL, LONDON, is being restored internally, under the direction of Mr. Savage. Mr. Rogers is executing the carvings. The pulpit is new, of oak, and profusely enriched with carved fruit and flowers; a new organ and gallery front has music trophies, branches of palm, oak, and garlands of flowers; the principal pews have wreathed and perforated panels. Works in this style for a church are a novelty now-a-days.

MATHEMATICS.—Mr. H. B. Browning, architect, of Stamford, has advertised "An Algebra of Ratios, founded on Simple and General Definitions."

IMPROVEMENT OF LONG-ACRE AND QUEEN-STREET.—Sir: The present state and contemplated rebuilding of the house at the corner of Great Queen-street and Drury-lane, seems to afford an excellent opportunity to improve the connection with Long-acre, so often talked about, and so long needed. Surely the parish authorities could be induced to move in this. A. A.

PANORAMA OF POMPEII.—Mr. Burford, assisted by Mr. Selous, has completed a panorama of Pompeii and the surrounding country, which will be exhibited next week at his building in Leicester-square. We shall refer to it.

CONFLAGRATION CAUSED BY UNSLACKED LIME.—A recent fire in Little Portland-street, Regent-street, is supposed to have been occasioned by some unslacked lime on the premises getting wet.

## TO CORRESPONDENTS.

*Received.*—"R. F." (we are unable to speak of the filter in question), "W. A. M." (see below), "Constant Subscriber (complains that one of the drawings to which the Royal Academy awarded a medal was not *accurate*), "J. P.," "J. T.," "A Subscriber," "C. D.," "G. H.," "W. F." (Derby), "Fair Play," "P. D.," "One who thinks Idleness a Curse," "Well-wisher to my Neighbour" (declined with thanks), "W. C." (the general question of heating has been often, and is constantly treated of in THE BUILDER), "T. W.," Chelmsford (the statements in question were from returns to Parliament, made by the Companies themselves), "J. L.," "F. C.," "B. B." (next week), "J. W." (we regret to be obliged to postpone; send us a memorandum of the theatre), "W. C. T." (shall hear from us), "E. S.," "J. D.," "N. D.," "J. K." (Mohill), "Enquirer" (we are not disposed to point out the most proper person for improving the navigation of rivers), "Your Constant Reader," "Churchyard of St. Margaret's, Westminster" (letters on this subject deferred), "Burnes against Troup" (note came too late; we shall be glad to have particulars), "A. B. F.," "J. H. E.," "W. C." (Bromley), "An Architect," Leeds (letter needs substantiation). "Original Treatises, from Twelfth to Eighteenth Centuries, on the Art of Painting, with Translations, &c.," by Mrs. Merrifield, 2 vols. (London, Murray, 1849); "State of the Lincoln Lunatic Asylum."

"*Note.*"—"A Trap to Catch a Sunbeam" (published by Wright, Pall-mall) is a charming little story, inculcating the folly of despondency and lethargy, and the importance of exertion. Our correspondent will find it just the thing for his purpose. Let him give away fifty. "Pictures from English History" (Whittaker, London; Burns, Bath) is an excellent and instructive work, well calculated to impress some of the leading facts of history on the minds of children, and to make them think.

"*Books, Prices, and Addresses.*"—We have not time to point out books or find addresses.


## ADVERTISEMENTS.

CHRISTMAS HOLIDAYS.

**ROYAL POLYTECHNIC INSTITUTION.**—A Lecture on the popular subject of the Electric Light, by Dr. Bachhoffner, on Tuesday, Thursday, and Saturday evenings. Popular Lectures on Chemistry, with brilliant experiments, by Dr. Ryan, daily, and on the evenings of Monday, Wednesday, and Friday. First exhibition of an entirely New Series of Dissolving Views in Mexico and Switzerland, with Historical Descriptions. Childe's Phantasmagoria, with very curious new effects, Mornings and Evenings. The Microscope at One o'Clock daily. New Chromatrope. Diver and Diving-Bell. Working Models explained. Music directed by Dr. Wallis.—Admission, 1s.; Schools, half-price.

**ROYAL CYCLORAMA and MUSIC HALL.**—The new extensive building annexed to the Colosseum, Albany-street. OPEN on and after DECEMBER 26th, with a COLOSSAL MOVING CYCLORAMA, representing Lisbon and Destruction of the City by the Earthquake in 1755. Designed and produced under the direction of Mr. William Bradwell; painted by Messrs. Danson and Son. The views will be illustrated by appropriate Music by Mr. Pittman on the New Grand Apollonicon, producing the effects of a full band. Open Daily at Two—first representation at half-past Two; second ditto at Four. Evening at Seven—first representation at half-past Seven; second ditto at Nine. A Grand Overture will precede each representation. Admission, 2s.; reserved seats, 3s. Children and schools half-price.

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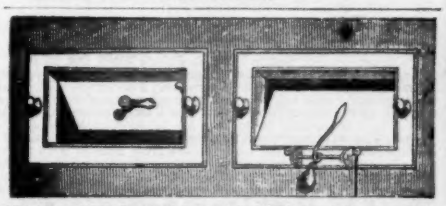
70, York-road, Lambeth; and 28, Cross-street, Blackfriars-road.



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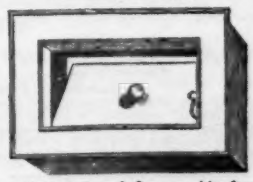

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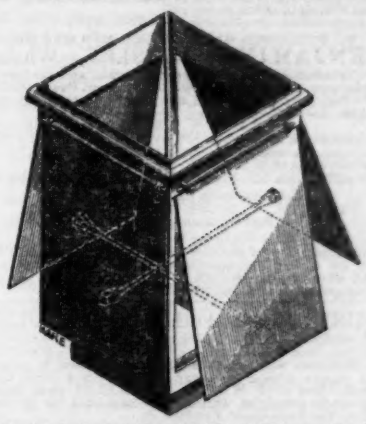
**CABLE'S FUMI PORTE; or, improved** CHIMNEY-TOP and VENTILATOR.



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**ENCAUSTIC, VENETIAN, BATH, and** other PATENT TILES, and MOSAIC PAVEMENTS, may be obtained in great variety at MINTON and Co.'s Warehouse, 9, Albion-place, Surrey side of Blackfriars-bridge; and at their Manufactory, Stoke-upon-Trent, Staffordshire.—N.B. Slabs and Tiles for Fireplaces, plain and ornamental; Door Furniture, &c.

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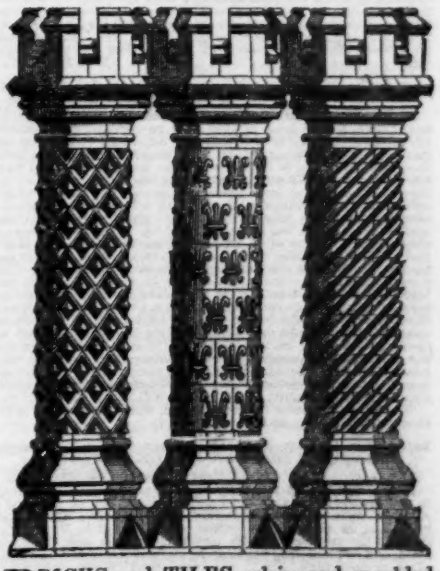
**FIRE BRICKS.—WARD and Co.,** Honduras Wharf, Bankside, respectfully solicit the attention of Gas Companies, Builders, Engineers, Oven Builders, Shippers, and others to the fact that they have now completed their Stock of Stourbridge, Welsh, and Newcastle Fire Bricks, Lumps, and Tiles, of all sizes and shapes, which they are offering with every advantage to purchasers. Goods may be had from ships in the river at a great reduction. Fire Clays, Loams, Dutch Clinkers, Stock Bricks, Windsor Bricks, Oven Tiles, Pan, Plain, Ridge, and Paving ditto, Moulding Sand, House Sand (red and white), River Sand, Ballast, Lime, Cement, Malt and Corn-drying Kiln Tiles, now in such general use for malting, &c. &c., Chimney-pots, Drain Pipes, Tiles, &c. &c. Goods made to pattern at the shortest notice. Sanitary Pipes of every description. Country orders executed with dispatch. Country Builders will find this the cheapest market for the above.

TO ARCHITECTS, BUILDERS, AND RAILWAY CONTRACTORS.



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Black Registers, from 6d. per in. and upwards.

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JOHN and EDWIN YOUNG, Proprietors.

## GALVANIZED IRON FOR ROOFING,

&c.—The Galvanized Iron Company beg to direct the attention of architects, surveyors, builders, and others, to their Patent Galvanized Iron, which is peculiarly adapted for ROOFING and BUILDING PURPOSES, especially for Tropical climates, being cheaper and more durable than zinc, lead, tin, or any other metal, calculating weight and strength. This fire-proof material has been used for roofing the new Houses of Parliament, shipbuilding and timber sheds in her Majesty's dock-yards of Deptford, Woolwich, Chatham, and Portsmouth; and at many of the principal Railway stations, gas works, &c. &c. This material is also admirably adapted for the construction of conservatories, fire-proof buildings, chain and wire rope bridges, corrugated doors, shutters, &c. &c. Specimens may be seen, and every information obtained at the Offices of the Company, No. 3, Mansion House Place, City—London. Works at Millwall, Poplar, Middlesex; Broad-street, Birmingham; Cobyn's Hall, near Dudley.

TO ARCHITECTS, CONTRACTORS, BUILDERS, AND OTHERS.

## WE have pleasure in calling your attention

to our REGISTERED CUPBOARD TURN, the novelty and simplicity thereof being universally acknowledged. It possesses the important advantages of a stop rose, a fast tongue, and regulating itself to any thickness of door; the cost being scarcely, if any more, than the ordinary turn, added to its utility, it will, we flatter ourselves, supersede any yet introduced.

WEBB and GREENWAY, Manufacturers and Wholesale Ironmongers, York-street, Birmingham.

TO ARCHITECTS, BUILDERS, &c.

## GEORGE JENNINGS, Patentee of the

SHOP-SHUTTER SHOE and FASTENER, INDIA-RUBBER TUBE COCK, &c. &c., 29, Great Charlotte-street, Blackfriars-road.

## IRON SHUTTERS.—The PATENT

CONVEX REVOLVING IRON SHUTTERS are cheaper, twelve times stronger, work easier, cannot run down, and roll up in one-third less room than any other shutters made. Harcourt Quincey, Patentee.

CLARK and Co., Sole Manufacturers, and of IMPROVED DRAWN ORNAMENTAL METALLIC SASH BARS, ASTRAGALS, MOULDINGS, STALL-BOARD PLATES, &c. &c. in brass, copper, and zinc. WROUGHT-IRON GIRDERS, HOT-WATER APPARATUS, and metal works of every description connected with buildings. Steam engines, millwork, and machinery. CLARK and Co., Engineers, 338, Wapping. Models can be seen and every information obtained at 458, Oxford-street, and 4, Moorgate-street, City. Agent for Scotland, Mr. G. BRIGSTOCK, 17, George-street, Edinburgh.

## BUNNETT and CORPE, ENGINEERS,

Patentees of

REVOLVING IRON AND WOOD SAFETY SHUTTERS, and of

ORNAMENTAL METALLIC SASH BARS, MOULDINGS, &c., IN BRASS, COPPER, ZINC, &c.

FOR SHOP-FRONTS, SKYLIGHTS, &c.

Shop-fronts completely fitted and fixed in a superior style, either plain or ornamental, also glazed with best plate glass. Strong moulded stallboards handsomely engraved. Metal works and machinery of all kinds in connection with banking-houses, shops, warehouses, &c. &c.

B. and C. challenge competition as to either quality or price.

Designs furnished and estimates given.

IMPROVED PATENT BENCH AND FLOORING CRAMPS FOR BUILDERS.

SOLE LICENCEES FOR MARVIN and MOORE'S PATENT DIAGONAL GRATINGS.

Office of the Patentees, 98, Lombard-street, London; and at the Works, Deptford, Kent.

## SNOXELL'S PATENT SAFETY

REVOLVING WOOD SHUTTERS, Manufactory, 96, REGENT-STREET and 121, CHANCERY-LANE. Patent sealed on the 4th day of February, 1843, for Fourteen Years, for Improvements in Revolving Shutters of WOOD and IRON, consisting of Six Methods of Raising and Lowering Shutters, without Machinery, and Two for Hinging and Sheathing the Edges of Wood Laths with Iron.—The Patentee having fixed up some hundreds, will feel pleased in forwarding the Testimonials of Architects, Principals of large Establishments, and others, having them now in use, which fully guarantees the Patentee in stating they are beyond dispute superior to any other Revolving Shutter for durability, security, and simplicity, without the use of cog-wheel worm and screw gear, or any other complicated machinery employed by other makers.

## PAPIER MACHE AND CARTON PIERRE ENRICHMENTS MANUFACTORY.

49 & 50, RATHBONE-PLACE.

GEORGE JACKSON and SONS beg the attention of Architects, Builders, Decorators, and others, to their large assortment of ENRICHMENTS in every style, executed in the highest class of art.—Enrichments for ceilings of every period, elaborate or simple, Gothic, Elizabethan, pendentive or flat, Louis XIV. in much variety, and to any degree of cost; Italian and Greek, Renaissance, and many modified characters, executed for the first houses, and from designs of architects of the highest eminence; wall dressings, rich panels of every period, rich Elizabethan and Gothic Dados, in many designs. Door-caps, mouldings, and dressings.

A large assortment of Gothic Bosses to many varied intersections of all sizes, tracery and panel headings for church works, organ dressings, of most periods, and faithfully executed to the traits of each.

The general decorations of Drawing and Dining Rooms, Libraries, &c., of very considerable extent, as furniture, glass frames, tables, window cornices, screens, candelabra, and the whole range of accompaniments to Reception Rooms of the first class, as well as more subdued.

The facilities and repeated enlargement of means enable GEORGE JACKSON and SONS to announce the execution of works of the above descriptions in these advantageous materials at a cost considerably below any known method, while for quality, relief, and finish, they flatter themselves they stand unrivalled.

DESIGNS MADE FOR ANY WORKS.

PAPIER MACHE AND CARTON PIERRE WORKS, 49 & 50, RATHBONE-PLACE, LONDON.

## CUNDY'S PATENT IMPROVED OPEN FIRE-PLACE, HOT-AIR, VENTILATING STOVE.

TESTIMONIALS AFTER LENGTHENED TRIAL.

From the Rev. WM. ROGERS, B.A., Incumbent of St. Thomas's, Charterhouse.

29, Charterhouse-square, Monday, Feb. 17, 1846.

Dear Sir,—The stoves which you have recently erected in my church have been highly successful, and I have great pleasure in expressing to you the entire satisfaction which they have given to all parties. The church, which was notoriously noted for its coldness and bad ventilation, is now most agreeably warmed and well ventilated. I shall be most happy, on any occasion, to bear testimony to the excellency of your stoves, and I will endeavour, to the best of my power, to make them known, and I will certainly recommend them to my friends.—I remain, Dear Sir, yours faithfully, WM. ROGERS.

From the Rev. W. GARRATT, M.A., Incumbent of St. John's, Fulham.

St. John's, Fulham, 2nd May, 1846.

My Dear Sir,—I have very great pleasure in giving my public testimony to the efficiency of your stove, as combining the double advantage of thoroughly warming and constantly ventilating any large church or building. Your invention appeared to me to be in theory all that could be desired, and I can honestly say that I have not yet discovered the point in which the practice falls short of the theory. The area of my church is computed to be nearly 200,000 cubical feet, and though a second stove will be required, the one already erected has fully answered my highest expectations, and realised all that you had given me to expect. If confirmation were needed, for evidence of its efficiency, I might further state, that I had peculiar difficulties to contend with, that various attempts had been made, and that every attempt had been a signal failure,—that I was exposed to the charge of boldness in attempting what had baffled others; but that such is the power, the efficiency, and the comfort communicated by your stove, that I know not of a dissentient voice, and have heard only of approval with unanimous consent. I might add that I was first led to making inquiry respecting your stove, having gathered indirectly, that a disposition not unfavourable towards it was entertained in a certain high quarter, where, on account of ability of discernment, the smallest approach to approval must carry with it great weight.—I remain, dear Sir, yours faithfully, WILLIAM GARRATT.

(The following winter the second stove, which is alluded to in the above letter, was put up.)

Letter from the Rev. MATTHEW O'BRIEN (Professor of Natural Philosophy and Astronomy), M.A., F.R.S., King's College.

Upper Norwood, 22nd June, 1846.

I beg to certify that one of Mr. Cundy's patent stoves was put up in my lecture-room at King's College, last year, in place of a common stove (of Arnott's construction, I believe). I have no hesitation in saying, from actual experience, that Mr. Cundy's stove is far superior both in producing warmth over the whole room, and in promoting ventilation, without disagreeable currents of air, or close smell. MATTHEW O'BRIEN.

Letter from PROFESSOR BRADLEY.

King's College, London, July, 1846.

Sir,—I am happy to be able to bear testimony to the efficiency of your stove, which is fixed in my lecture-room at this institution. It seems to have all the essential requisites of a good stove, a rapid draught, freedom from all smoke, and from that smell which arises from iron, heated in contact with the air of a dwelling room; which is entirely avoided by your arrangement.

I am, Sir, your obedient servant, THOMAS BRADLEY.

From the Rev. Dr. THOMPSON, Incumbent of All Saints', St. John's Wood.

Gothic Villa, St. John's Wood, Oct. 22, 1846.

Sir,—Perhaps there are few private individuals who have had more experience in stoves than I have had; I have tried most of the newly invented ones, and rejected all but yours, two of which I have tried in my Temporary Church, and found them to succeed so well that I have introduced them into All Saints' Church, St. John's Wood. The following reasons induce me to approve of them:—Exemption of effluvia, the emission of a great body of *pure* warm air, the perfect system of ventilation, the sight of the fire, the consumption of vitiated air, the little attention requisite, the cleanliness connected with them, and though last not least, *the great economy of fuel*. All more I can say in avour of your stoves is, that whenever I require a stove, either for my house or church, I shall purchase your patent stoves, and recommend all my friends to do the same.—Yours truly, ED. THOMPSON, D.D.

From the Rev. W. H. IBOTSON, B.A., Incumbent of St. James, Norland.

St. James's, Norland, February 21st, 1846.

Sir,—I have much pleasure in certifying that since our stoves were rectified and completed, they have given in all respects the greatest satisfaction. By proper attention to doors and windows we can raise the temperature in very cold weather to 55 degrees, with one of your large stoves and two small ones, in our church, which contains about 190,000 cubic feet. The fires are very cheerful and agreeable in appearance, and the warmth occasioned by them is most pleasant and healthful.—I am, yours truly, W. H. IBOTSON.

From the Rev. J. D. FROST, B.D., Minister of St. Paul's, Winchmore-hill.

Winchmore-hill, October 23rd, 1846.

Dear Sir,—After one winter's experience of your stove in St. Paul's Chapel, I feel no hesitation in saying that it may fairly claim a place in the first rank, among the inventions for warming churches. Before adopting your stove, I made extensive inquiries both as to the different kinds of stoves in use, and also as to the hot water system. Inconveniences of one kind or other I found practically experienced under the various systems which I witnessed; but I really have not one inconvenience or objection to allege against your stove. I believe it to be more powerful than any other stove of the same dimensions and expense; and it is far more agreeable in a church than any other with which I am acquainted.—I remain, dear Sir, yours truly. J. D. FROST.

P.S.—I should strongly recommend those who adopt your stove, to use the Derbyshire coal. The "Fresh Air Channel" with which your stove is supplied, serves a very useful purpose during the summer months in assisting the ventilation of the church, without occasioning any unpleasant draught.

From the Rev. A. BRANDRAM, M.A., Rector of Beckenham, Kent.

Dear Sir,—I have much pleasure in stating to you that I consider your stove to have answered, and very satisfactorily too, every reasonable expectation; and I do not hesitate to recommend it strongly to the attention of those who are intending to introduce a warming apparatus into their churches, or other large buildings, for the first time, or who have reason to be dissatisfied with stoves hitherto employed.—I am, yours faithfully, A. BRANDRAM.

From the Rev. Dr. VIVIAN, Minor Canon of St. Paul's, and Rector of St. Peter-le-Poor, Old Broad-street.

Sir,—I have no hesitation in bearing testimony to the excellency of your stoves; in producing an *equal* degree of warmth over the whole of a large building, and in promoting ventilation, I consider them unrivalled. They are also the most economical I have ever met with. My church, which was notoriously one of the coldest in the metropolis, has, since the introduction of your stove (one of the largest size) about twelve months ago, become perfectly warm and comfortable.—I am, Sir, your faithful and much obliged servant, J. W. VIVIAN, D.D.

From the Venerable Archdeacon SINCLAIR.

Vicarage, Kensington, 1st Nov., 1846.

Dear Sir,—Having suffered much inconvenience on various occasions from hot water apparatus and other plans for heating large buildings, I had much satisfaction in hearing of your stove. I considered it to be constructed upon sound scientific principles, and having been informed of many cases in which it had been tried with success, I recommended it to the churchwardens of this parish. In Kensington Church you had great difficulty in obtaining a sufficient draft in the flues, but your stoves have been a great improvement upon the one previously in use; and I am confident that the alterations you now propose will give the church, in respect to warmth and ventilation, every advantage we can desire.—Believe me to be, yours faithfully, JOHN SINCLAIR.

## PATENT TORRENT WATER-CLOSET.

AUSTIN'S PATENT.

This much approved and admired Closet is strongly recommended to those Architects and Builders who have not yet tried it: it is SELF-ACTING, THOROUGHLY CLEANSES the basin, is always TRAPPED, and requires no CISTERN if it can be connected with the water-main.

THE STOVES AND WATER-CLOSETS ARE MANUFACTURED ONLY BY MESSRS. DOWSON (LATE OF 69, WELBECK-STREET), STINGO IRON-WORKS STINGO-LANE, LONDON.